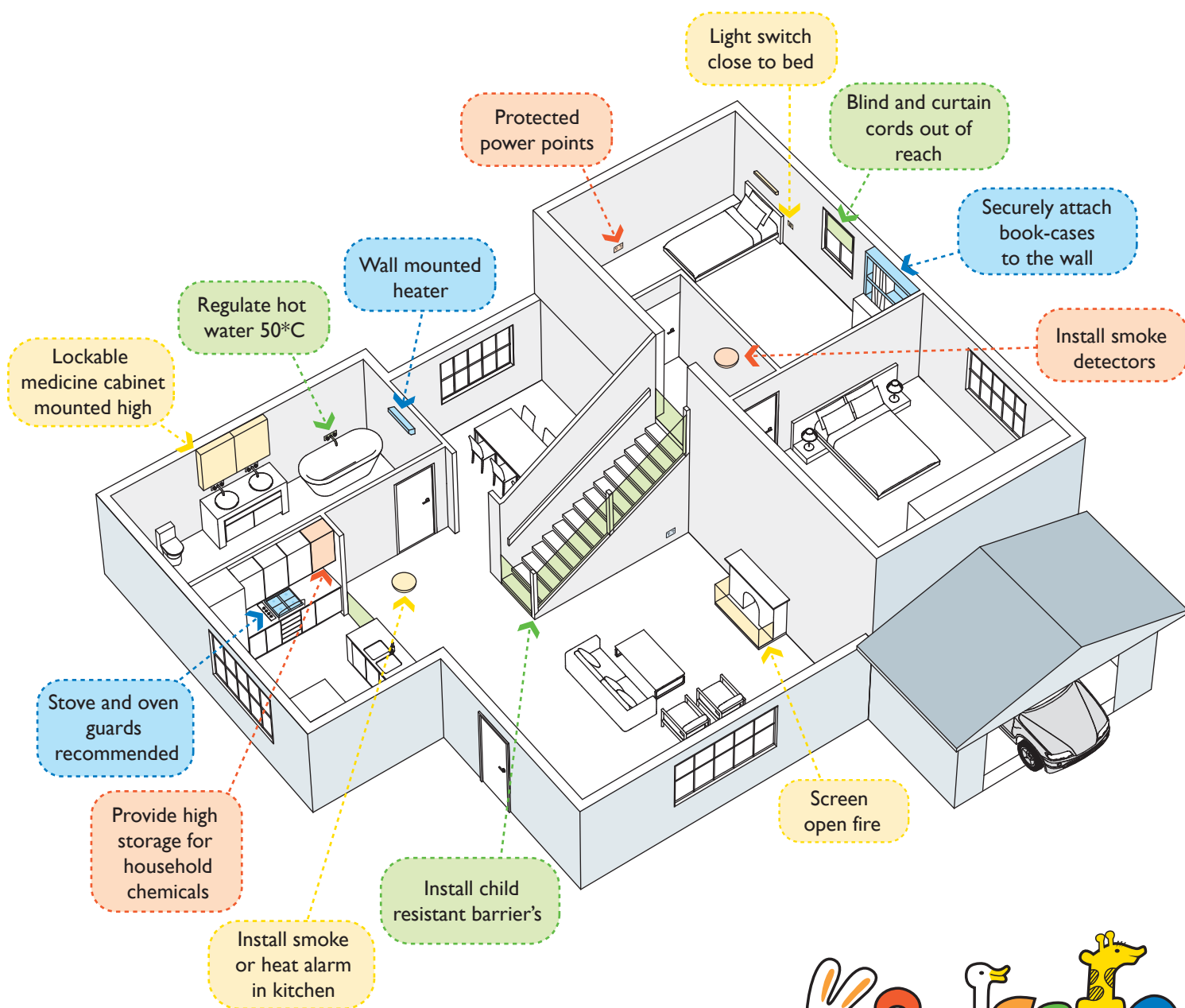


SAFER HOMES FOR CHILDREN

Design & Construction Guidelines >>>



SAFER HOMES FOR CHILDREN

Design & Construction Guidelines >>>

The purpose of this publication is to provide child home safety design, construction and fitting guidelines for builders, renovators, architects, sub-contractors, suppliers of fixtures, fittings, furniture and services, government bodies and authorities, lending authorities, those concerned with public housing and parents and carers of young children.

It is the hope of Kidsafe NSW that all involved in the design and construction of homes and the care of children will find practical applications for child home safety from this publication.

Kidsafe NSW acknowledges the support provided by the New South Wales Office of Fair Trading who awarded Kidsafe NSW a funding grant to review, update and produce this publication.

CONTENTS

page.	2	Foreword
	3	Australian Standards
	4	Introduction
	6	Kitchen
	8	Bathroom
	10	Laundry
	12	Living/Family Room
	14	Children's Bedroom and Nursery
	16	Entrance and Front Garden
	18	Outdoor Play Areas
	22	Doors and Windows
	24	Stairs and Balustrades
	26	Hot Water
	28	Heating Systems and Fire Prevention
	29	Smoke Alarms
	30	Electricity
	32	Family Day Care and Home Based Care Facilities

Kidsafe is the trading name for the Child Accident Prevention Foundation of Australia (CAPFA) and is the leading not-for-profit, non-government, charitable organisation dedicated to the prevention of the incidence of injuries, deaths and disabilities from unintentional injury to children up to 15 years of age.

About Kidsafe

CAPFA, (Kidsafe) was founded in 1979 to raise awareness of childhood injury, to promote evidence based prevention measures and to encourage governments, communities and individuals to create safer environments for children. Its vision is to 'make a safer world for kids'. To achieve this, the leading strategies and actions of Kidsafe are to minimise the unacceptable risks and consequences of unintentional injury to children in our adult-focused world.

Kidsafe is a national organisation located in all States and Territories. Kidsafe New South Wales is located at Kidsafe House in the grounds of the Children's Hospital at Westmead, and at Charlestown in Newcastle.

The house has been built to represent a typical family home with a lounge/dining area, kitchen, bathroom, nursery, laundry and outdoor play area. Throughout the house, displays and information are provided highlighting childhood hazards and the injury prevention strategies that can easily and inexpensively be incorporated into new and existing homes to prevent most unintentional childhood injuries.

Further information can be found on the following Kidsafe websites:

Kidsafe NSW: www.kidsafensw.org
Kidsafe Hunter Region: www.kidsafehunter.com
Kidsafe National: www.kidsafe.com.au

Safer Homes For Children – Design and Construction Guidelines

Kidsafe New South Wales has had a long commitment to the safety of children in the home and since its founding as the Child Accident Prevention Foundation of Australia (CAPFA) in 1979 believes that child home safety and injury prevention is an issue that affects every household.

Many accidents that occur to children in the home are preventable. By planning ahead, many safety hazards can either be removed from the home or effectively guarded against, ensuring many serious and even fatal child accidents are prevented.

Kidsafe NSW aims to continue to raise the awareness of potential safety hazards within the home to those involved in designing, building and renovating homes. This booklet is an important resource for new home buyers, parents and carers of children, to assist in identifying and removing hazards within the home. The booklet is an update of the original 'A Safer Home for Children' published in 1992, which was developed and produced by the NSW Division of the Child Accident Prevention Foundation of Australia (Kidsafe) and the 1998 publication 'Child Home Safety Construction Guidelines' which was commissioned by Queensland Health. Reference and content has also been made to relevant Australian Standards, including 'Guidelines for Safe Housing Design'.

AUSTRALIAN > STANDARDS

Kidsafe NSW is grateful for the support and dedication of Mr. Ross Maxwell, Architect and a Director of Collard Maxwell Earnshaw, who gave considerable time and counsel to the reviewing and rewriting of this booklet. Ross was the principal architect involved in the development, writing and publication of the '*A Safer Home for Children*' booklet in 1992.

Others involved in the review and updating of this booklet include Mrs. Dorothy Bell, Ms. Selina Withaneachl, Ms. Margaret Cavanagh and Mr. Greg Stead, all from Kidsafe NSW who saw a need to ensure that Kidsafe continues to advocate for and promote safe home design to help reduce the incidence and severity of unnecessary unintentional injuries occurring to children in and around the home.

The '*Safer Homes for Children*' booklet should be read in conjunction with Australian Standard AS 4226 – 1994, 'Guidelines for Safe Housing Design'. This Standard is, at the time of the publishing of this booklet, under review. Kidsafe NSW is a member of the Standards Committee reviewing AS 4226.

Throughout this booklet, reference is made to various Australian Standards. These are listed below and for further information on these Standards, it is recommended you contact Standards Australia.

Australian Standard ■

- **Glass in Buildings – Selection and Installation**
[AS 1288-1994](#)
- **Swimming Pool Safety**
[AS 1926](#)
- **Cots for Household Use – Safety Requirements**
[AS/NZS 2172-2003](#)
- **Space Heaters-Secondary Guards**
[AS/NZS 2286-2001](#)
- **Heated Water Services**
[AS/NZ 3500.4:2003](#)
- **Slip Resistance of Pedestrian Surfaces**
[ASA/NZ 3661.2:1994](#)
- **Smoke Alarms**
[AS 3786](#)
- **Bunk Beds**
[AS/NZ 4220:2003](#)
- **Guidelines for Safe House Design**
[AS 4226-1994](#)
- **Playground Equipment**
[AS 4685](#)

INTRODUCTION

Children experience minor accidents in the home every day. Whether it be a slight bump or a small scratch it is difficult to protect children against these small commonly occurring accidents. However, the more serious and even fatal accidents that occur in the home are preventable.

Child home safety is an important but an often neglected component of home design, construction and renovation.

Simple design of household features and the removal of hazards from the home can help prevent the occurrence of serious often fatal injuries to children in the home.

Each week throughout Australia more than 150 children are admitted to hospital and, unfortunately, 4 to 5 will die as a result of unintentional injury. Many more children require medical treatment in hospital emergency departments or by local medical practitioners. Most non road and pedestrian related injuries result from falls, backyard drowning and near drowning, poisonings and burns and scalds. The most common location for these injuries to occur is in our homes. Approximately 70% of all injuries to children under 5 years of age occur at home. For all children aged from 0 to 14 years, about 48% of injuries occur at home. Injury has replaced disease as the single largest cause of death and disablement to young children throughout Australia. This makes the safety of young children in the home an issue affecting every household in the community.

Kidsafe NSW does not advocate for the 'cocooning' of children. It is important for children of all ages to participate in exciting, active, safe and creative play in the home. However it is also important to eliminate the unacceptable hazards and risks that do occur in and around the home that lead to childhood unintentional injury and even death.

Most accidents, which occur in the home, can be avoided by incorporating simple child safety designs into new or existing homes.

Children are inquisitive by nature and many parents will have stories of children's misadventures while their backs have been turned. All parents and carers of children know it is impossible to provide constant 24 hour a day supervision for children and that is why it is imperative for child home safety features and designs to be used.

Parents and carers of children know how quickly children develop and learn new skills, whether it is the ability to roll over, reach and grasp objects or to climb household furniture and fixtures. These new skills, while signalling the child's development, also signal the need for constant age appropriate safety features and supervision in the home.

For example:

- An unguarded floor heater could result in life long scarring if a child unexpectedly rolls onto the heater.
- A hanging appliance cord in the kitchen could result in permanent scalds if a child suddenly grasps the cord of an electric kettle that contains hot water.
- Stairs without a top and bottom barrier or gate can result in a child falling down the stairs and suffering broken bones and/or serious head injuries.

Utilisation of safety features and designs in the home can help to reduce the everyday risks to children. Peace of mind for parents is an added bonus when child home safety features are incorporated into the home. This means if a parent needs to turn their attention away from a child for a few moments, they can be confident that their child will not be able, for example, to:

- access poisons or medications,
- reach electrical appliances,
- access hot water,
- access stairs or balconies, or
- be tempted by a pool, bathtub or bucket of water.

Whether you are buying an existing home, building a new home or renovating there are many inexpensive child safety designs, features and products which you can incorporate into your home. Many of the child safety features are items designed to ensure the safety of all occupants, not only children. Some of these safety items are: smoke alarms throughout the home, electrical safety switches, hot water tempering valves to prevent burns and scalds and front sensory lights to provide occupants with peace of mind and safety when answering the door of an evening.

It is also important to remember that your home safety designs and plans need to change with your child. As your child grows older, developing more curiosity for the world around them, becoming more mobile and independent and developing the skills which will enable him/her to reach, touch, crawl and walk, you may need to modify safety designs in your home to avoid injury.

The safety needs of a six-month-old child are very different to those needed for a two-year-old child. For many families when buying or renovating a home the cost of additional features is of great importance. Many of the modifications listed in this publication are inexpensive. A number of the design features will be less expensive if they are included in the design and construction of a new home.

Kidsafe recognises that for families who are renting, they are usually not able to make changes or modifications to the home. However, there are a number of basic safety practices incorporated in this booklet that can be followed to help make your home safer for children. Kidsafe also suggest contacting the agent or owner of your home if inexpensive safety improvements could be made.

The recommendations made in this publication in no way relieve designers or constructors from compliance with any statutory provisions, including the Building Code of Australia (BCA) or imply that any relevant Australian Standard (AS) need not be observed. Also, no recommendations in the publication should be regarded as a substitute for the adequate adult supervision of young children.

It is recognised that many of the recommendations contained in this booklet are not compatible to people, including children, with disabilities. In these circumstances, it is suggested that a consultant specialising in the field of disabilities be engaged to assist with your home design or renovation.

The kitchen in most family homes contains numerous potential hazards to young children. These hazards range from hot fluids, poisons, fire, and the potential for electrocution and falls.

By incorporating simple design adaptations to new homes and by incorporating safety features into existing homes the potential hazards to children can be minimised.

The inclusion of a stable child resistant barrier at the entrance to the kitchen minimises children's access to stove tops and hot oven doors, kitchen drawers, poisonous cleaning agents, and other kitchen hazards.

Incorporating these simple safety designs can help to reduce the number of injuries to children in the kitchen.

RECOMMENDATIONS

Kitchen design

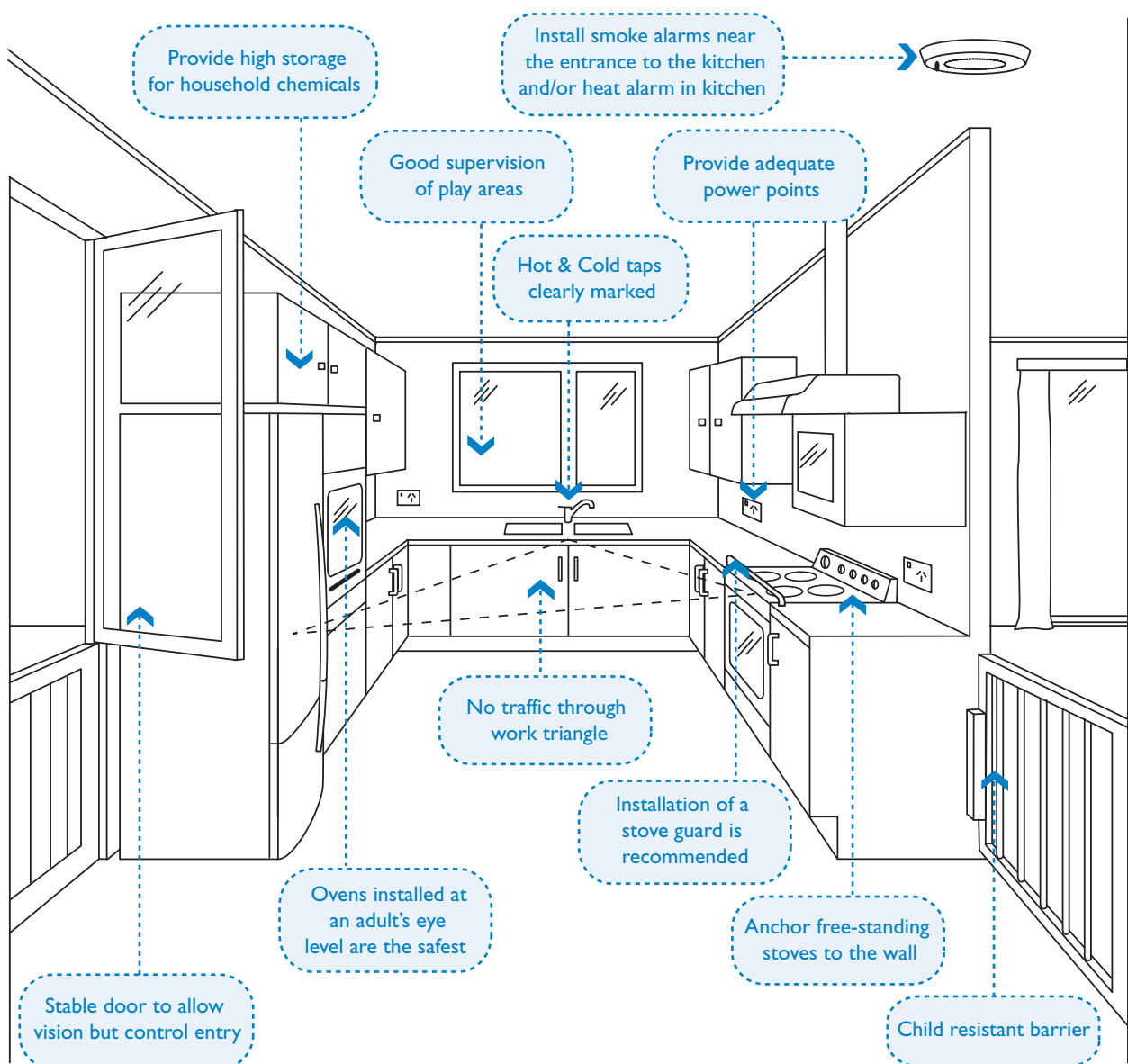
- Avoid planning your kitchen as a thoroughfare.
- Place a moveable child resistant barrier/half door in the entry point(s) to the kitchen to exclude children while still allowing supervision.
- Do not have access to the backyard through the kitchen. Ensure the kitchen position provides good visibility to inside and outside play areas.
- Ensure all floors are slip resistant.
- Minimise the distance between stove and sink.
- Provide a heat resistant bench either side of the stove at the same level, to prevent misjudging the bench height and spilling contents of a hot pot. A conventional floor mounted stove is 910mm high.
- Locate kitchen drawers away from stove/oven and install child resistant locks (*particularly on the utensil and cutlery drawers*). Consider the style of drawer knob to prevent children climbing onto benches or the sink area.
- Ensure all external corners below 900mm are rounded.
- Position electrical outlets close to work surfaces where appliances are used and away from the sink area. For further information on electrical safety in the home, **see page 30, 'Electricity'**.

Kitchen Modifications

- It is recommended that hot water temperature be limited to a maximum of 50°C. For more information on hot water, **see page 26, 'Hot Water'**.
- Fit fire control devices (*fire blanket and extinguisher*) near an exit, not next to the stove.
- Install smoke alarms near the entrance to the kitchen, and/or heat alarms in the kitchen. **Refer to page 29 'Smoke Alarms' for more information.**
- Anchor a free standing stove to the wall and install a master switch.
- The installation of a stove and oven guards are recommended.
- Ovens installed at an adult's eye level are safest.
- Provide the option of high and low storage areas. Fit low level storage areas with child resistant locks. Keep household chemicals in high storage areas out of the reach of young children.
- It is recommended to install a safety isolating switch to all electric stoves and cook tops that do not have this safety feature. This will help prevent a child turning on the stove or cook top. **Also refer to page 30, 'Electricity'**.
- For gas stoves, cook tops and ovens, it is recommended to install ones that are fitted with a Flame Failure Device. The device will cut off the gas supply after a few seconds when heat is undetected.

HAZARDS

- › Burns and Scalds
- › Falls and slipping
- › Poisoning
- › Fire
- › Electrocution
- › Lacerations



BATHROOM

Young children are inquisitive by nature, and the bathroom offers children numerous play items which can be potentially hazardous, if not life threatening. Accidents in the bathroom can occur quickly and can have long lasting consequences. Hot water scalds can leave life long scars. More than 80% of scalds from hot water occur in the bathroom. Hot water at 60°C can cause a full thickness burn to a child's skin within one second. At 50°C it will take 5 minutes. Therefore, hot water should be controlled to a maximum of 50°C in the bathroom. This can be achieved by installing a thermostatic mixing valve or tempering valve into the hot water system, (refer to AS 3500). These devices will need to be installed by a professional plumber. Alternatively, a shut off valve may be fitted to the waterspout to reduce the flow of water once it reaches approximately 50°C.

For more information on hot water, see page 26 'Hot Water'. Poisoning is a major cause of injury and even death to young children. Child resistant medicine cabinets should be provided to prevent children from accessing medications and poisons.

RECOMMENDATIONS

Bathroom designs

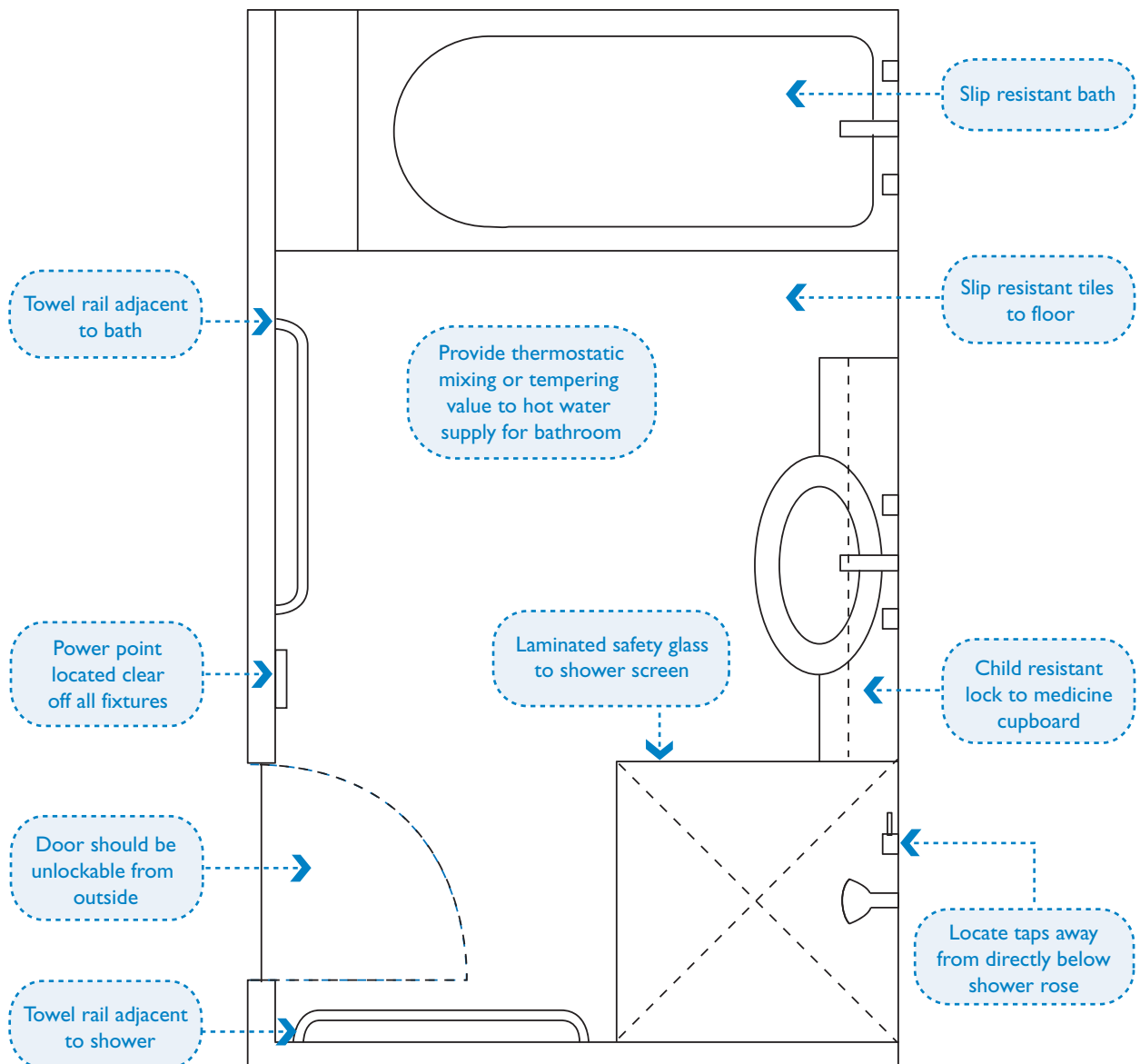
- Ensure bathroom fittings are not arranged to create a climbing path for children.
- Position wash basins so they do not overhang the end of the bath.
- Position bath taps out of reach of small children.
- Avoid the use of protruding soap holders. If used, position 1200mm above the floor to reduce injury in case of a fall. Locate soap holders into the corners of the shower recess.
- Ensure the use of rounded edges on bathroom fittings and fixtures.
- Ensure bath, shower trays and bathroom floors are of a slip resistant material.
- Ensure all glazing around showers is safety glass or plastic.
- Place all electrical outlets so that appliance cords do not extend across basins, or vanity units. For further information on electrical safety in the home, see page 30, 'Electricity'.
- Refer to the New South Wales Plumbing Code and AS 3500 for further information.

Bathroom Modifications

- Position towel rails adjacent to the bath and shower to assist access. Ensure the rail fitting is strong enough to support an adult's weight.
- To reduce incidence of scalding from an untempered stream of hot water it is recommended that a common spout be used in preference to two taps, ie, a flick mixer.
- Ensure hot water is not delivered above 50°C. For further information on hot water in the Home, see page 26 'Hot Water'.
- If the hot water temperature can not be regulated, fit tap caps to the hot water taps on the bath, basin and shower.
- Install a child resistant cabinet for the safe storage of poisons/medicines in the bathroom.
- Fit child resistant catches to vanity drawers and cupboards to prevent children accessing toiletries and household cleaning products.
- Fit bathroom and toilet doors with removable hinges for emergency release to allow opening of the door from the outside.

HAZARDS

- › Hot water burns
- › Falls and slipping
- › Drowning
- › Electrocution
- › Poisoning
- › Spa bath entrapments
- › Lacerations from broken glass and sharp objects
- › Children climbing out of windows
- › Children locked in bathrooms



LAUNDRY

The laundry is often an area in which many household jobs are performed. Poisons and detergents are often stored in the laundry.

Therefore, to prevent injuries such as falls and slips on wet floors, burns from hot irons and poisonings from cleaning detergents and washing powders, it is essential that children are unable to gain access to the laundry,

Essential safety items in the laundry are: child resistant gates to restrict children's entry and child resistant poison cabinets located high and out of children's reach.

RECOMMENDATIONS

Laundry Design

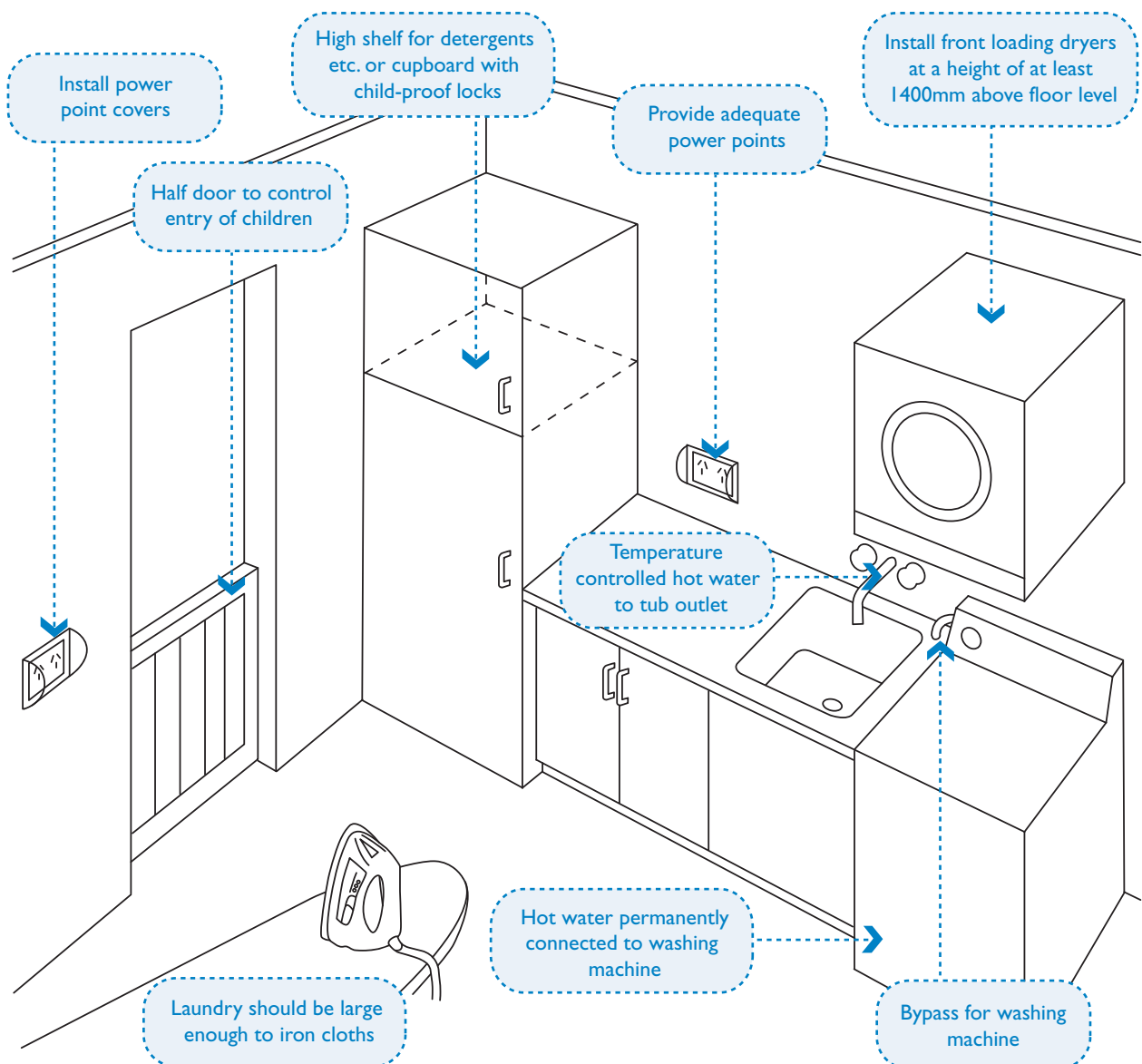
- Ensure all floors are of a slip resistant surface.
- Provide bench space large and strong enough to hold a laundry basket or full nappy bucket. Always keep nappy and/or cleaning buckets out of children's reach to avoid potential drowning situations.
- Fit a moveable barrier to keep small children from entering the laundry, or alternatively, a half door can be used for the same purpose.
- Allocate a space in the laundry for ironing. A barrier will prevent children from entering while ironing.
- Install power points for appliances adjacent to the work area and not within the splash area of tubs. For further information on Electrical Safety, see page 30, 'Electricity'
- Provide safe storage for hot irons after use.

Laundry Modifications

- Fit all laundry cupboards with child resistant locks for safe storage of washing powder and cleaning chemicals.
- Install front loading dryers at a height of at least 1400 mm above floor level to prevent young children climbing into the dryer.
- Use a laundry tub drainage by-pass for the washing machine to avoid potential scalding and drowning.
- Ensure the water temperature does not exceed 50°C in hot water outlets, which are accessible to children. For further information, see page 26, 'Hot Water'.

HAZARDS

- Hot water burns
- Electrocution
- Poisoning
- Drowning
- Fall and slipping
- Entrapment in front loading washing machines and dryers



LIVING/▶ FAMILY ROOM

The living room serves as a place in the home where all members of the family can play or relax. Many living rooms are children's play areas and contain storage areas for children's toys. It is important to remember that the living room needs to cater for the storage of adult's items such as video recorders, stereos, DVDs, CDs and liquor cabinets.

To ensure a safe and relaxing environment for all family members it is important to include stable, child resistant storage for adult's valuable and hazardous items (e.g alcohol), adequate play areas and toy storage for children.

RECOMMENDATIONS

Living/Family Room Design

- Position the living room/family room to provide good visible supervision from the kitchen.
- Allow for reasonable play areas between furniture and minimise through traffic.
- Ensure benches and corners less than 900mm above floor level are not sharp (*edges should be rounded*).

Living/Family Room Modifications

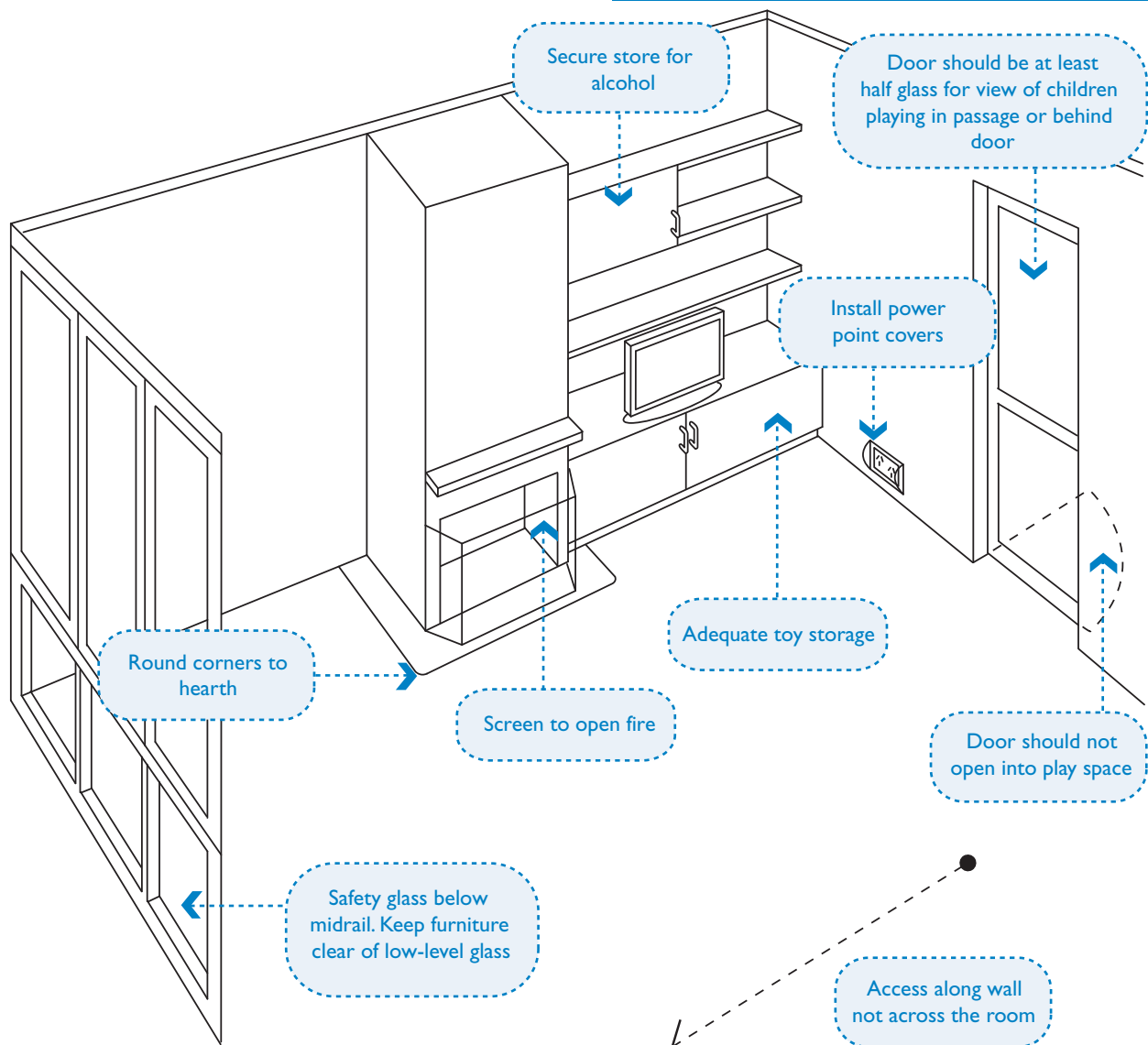
- Provide adequate low level storage for play items and secure high storage for adult items.
- Ensure any sewing area in the home has a smooth impenetrable floor covering to prevent the danger of pins being dropped and lost in the floor covering.
- Fit safe and secure guards to all heating appliances and fire places.
- Consider reverse cycle air conditioning, convection heaters or wall mounted heaters in preference to floor mounted heaters.

Living/Family Room Safety Practices

- Do not place furniture near windows or next to balustrades to eliminate climbing paths for children.
- Ensure all wall units and bookshelves are sufficiently secured to prevent them tipping over.
- Place televisions on appropriately stable and fixed cabinets or tables with sufficient surface area to prevent them falling on to children. Never place objects that children want on top of televisions. This will discourage children from attempting to reach up or climb on the television which may result in the television falling on the child. Where possible, it is recommended to secure televisions to the wall.

HAZARDS

- › Burns from open fires and heaters
- › Falls against sharp edges and corners
- › Toddler access to stairs, balconies and verandahs
- › Falling or running through glass doors and windows
- › Unstable wall units, shelves, bookcases, etc on which children may climb
- › Insecure objects or pieces of furniture, and televisions falling on a child
- › Access to alcohol
- › Electrocution



CHILDREN'S BEDROOM

The bedroom is often a place where children retreat and play.

Children often engage in boisterous activities in the bedroom and special safety design features should be taken into consideration. These include rounding all edges, avoiding the use of bunk beds to reduce falls and removing curtain/blind cords from the reach of children.

House fires have been known to start in a child's bedroom. An important safety feature in a child's bedroom is the correct placement of smoke alarms. Many children have died in fires or from smoke inhalation due to the lack of fire warning. To reduce the risk of fire, heaters should not be located in children's bedrooms. However, if necessary the use of wall mounted convection heaters is a preferred option.

THE NURSERY

It is mandatory in NSW and most other states that all new and second hand cots must comply with the safety requirements of the appropriate Australian Standard (AS/NZS 2172-2003).

Change tables should have some form of roll off protection eg raised sides at least 100mm high, or be concaved shaped deep enough to stop the child rolling and be strongly constructed so as to stop the table collapsing.

RECOMMENDATIONS

Bedroom and Nursery Design

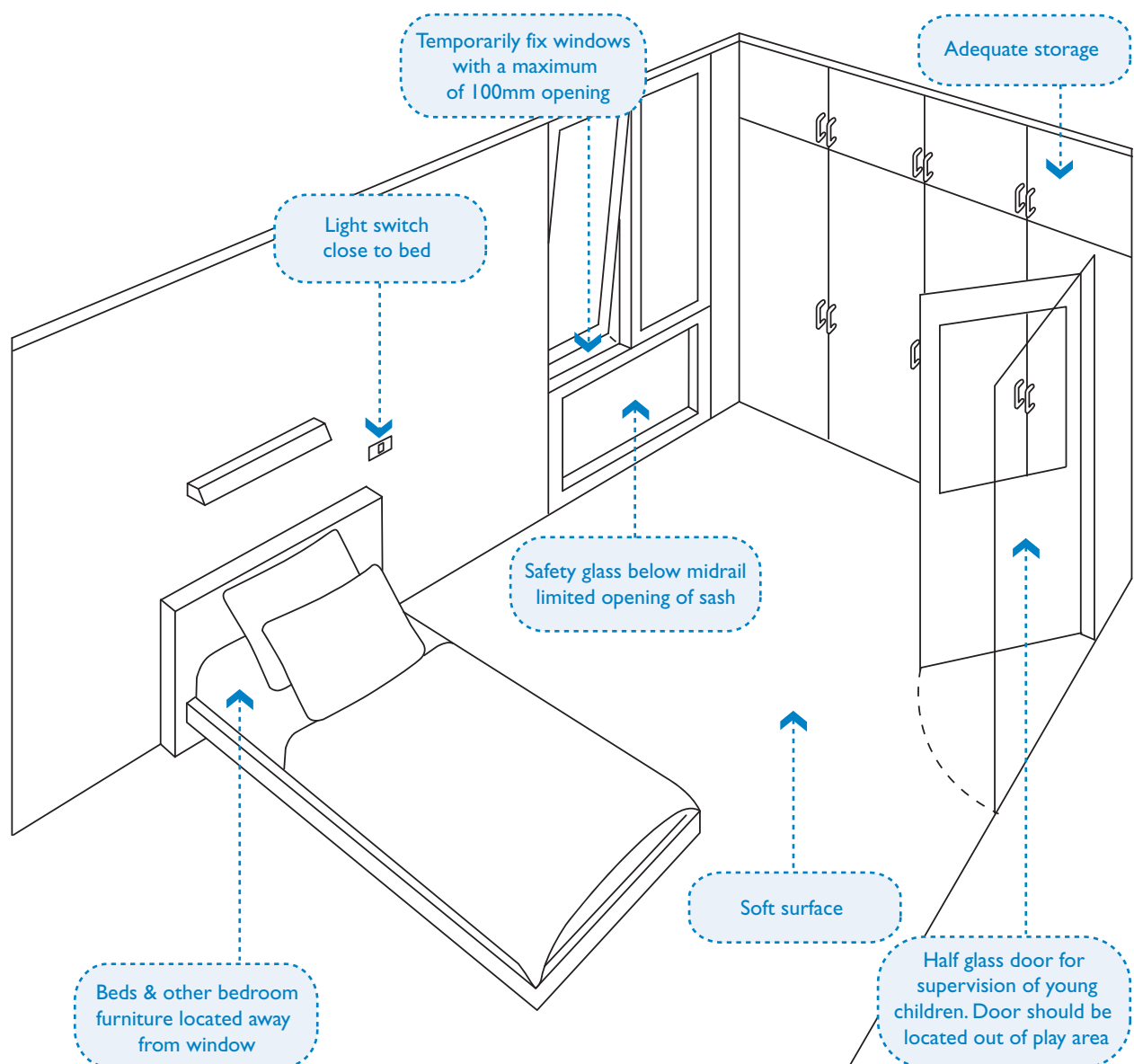
- It is recommended that bedrooms allow sufficient space for two single beds. If this is not possible bunk beds must comply with Australian Standards (AS/NZ 4220). The top level of bunk beds are not recommended for children under the age of 9 years.
- Consider providing each bed space with a light switch within easy reach of the bed.
- Ensure all external corners below 900mm, on to which a child may fall, are rounded.
- Do not place cots, beds or change tables under or within climbing distance from windows.
- Ensure curtain/blind cords are removed or at least do not have looped ends. It is recommended the cord ends are at least 1600mm above floor level.
- Ceiling fans are not recommended for use in a child's bedroom.
- Securely attach wall units/bookcases to the walls to prevent children from tipping the fixture over.
- For more information on doors and windows see page 22, 'Doors and Windows'.

Bedroom and Nursery Modifications

- Provide stable storage space.
- Install smoke alarms in children's bedrooms.
- Fit keepers and suitable hinges to allow doors to be hinged back and held open.
- Power outlets that are mounted at a low height, need to be protected.
- It is recommended to protect plugs of appliances and fittings with a shroud to the potentially live pins.

HAZARDS

- Falls out of windows
- Falls within the bedroom
- Lacerations
- Burns/ Fires
- Electrocutation
- Concealment of children and their activities
- Strangulation



ENTRANCE > & FRONT GARDEN

We have all heard tragic stories of young children wandering out the front door of the house onto the driveway and behind a moving vehicle.

Access from the front of the house to the driveway needs to be restricted to prevent young children from accessing the driveway or finding their way onto the road.

A sensor light located at the front of the house is a useful safety device to prevent tripping when entering the house in the evening.

Note that a driveway presents the same risks as a minor road. Discourage children from using it as a play area.

RECOMMENDATIONS

Entrance & Front Garden Design

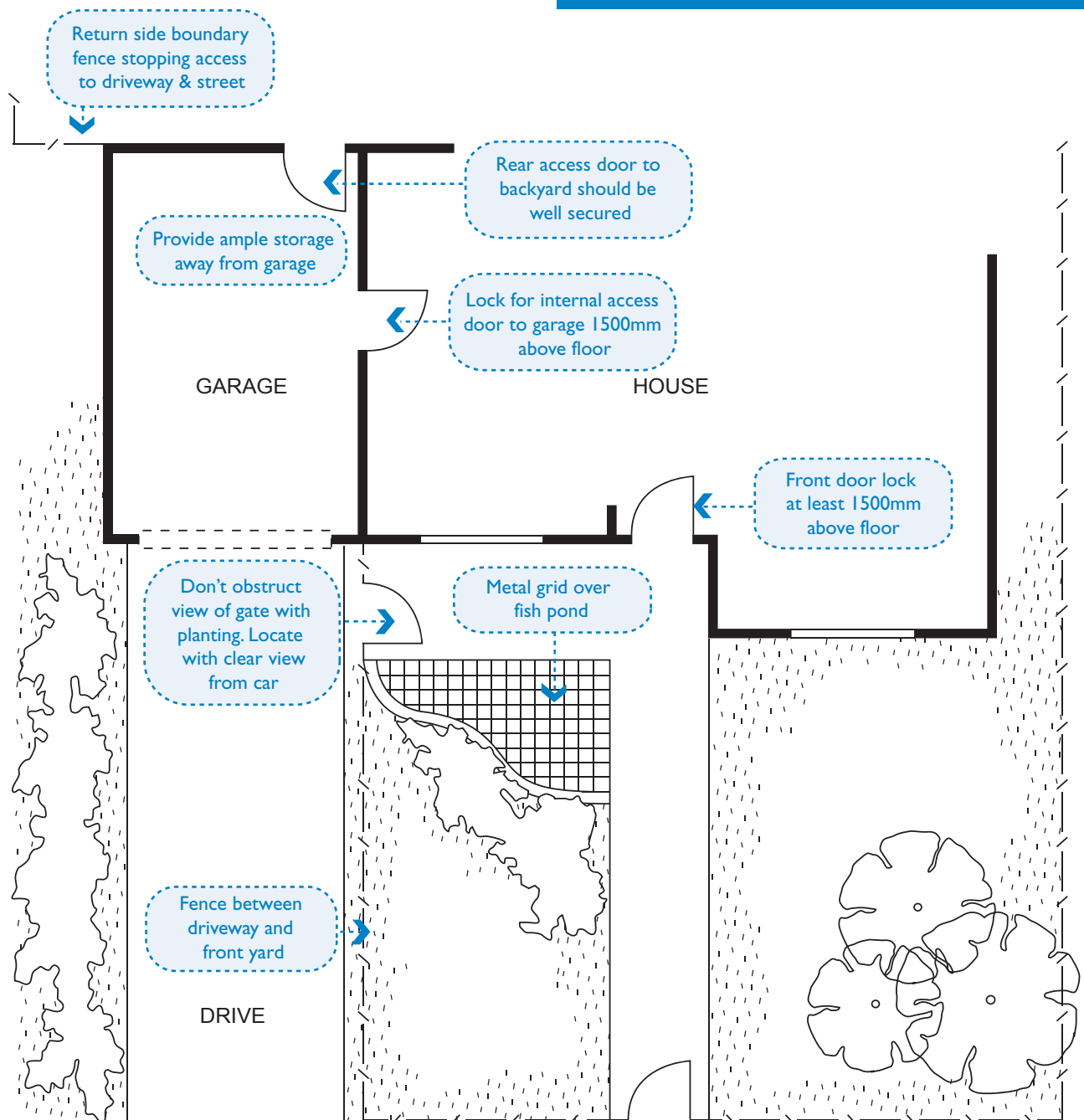
- Separate all playing areas, from the driveway by fencing. **Also refer to page 25, 'Stairs and Balustrades'**.
- It is preferable that the garage does not provide access from the rear yard into the front garden.
- A U-Shaped driveway is recommended to eliminate the need to reverse out.

Entrance and Front Garden Modifications

- It is preferable that the front door does not open onto the drive way.
- It is recommended that external movement sensor lights be installed. Fit a lock 1500 mm above floor level on the front door.
- Ensure all garden gates and exterior doors are self closing and self latching and have child resistant locks, which are out of children's reach.
- Any fish pond, fountain or water feature is a potential drowning hazard. **Refer to page 18, 'Outdoor Play Areas'**.

HAZARDS

- Danger of reversing in front driveway when children are about
- Drowning in fish ponds or fountains
- Children running on to roadway
- Access by toddlers to an open front door



OUTDOOR PLAY AREAS

When designing outdoor play areas for child safety there are numerous aspects to consider. Safety inclusions range from ensuring there is adequate shade for children's play areas, to ensuring the play area is visible from the main areas of the home to enable constant child supervision. It is recommended to enclose children's play areas with a child resistant fence to protect children from neighbourhood dogs, unfenced pools, fountains or ponds in the local neighbourhood, and to prevent them from wandering out of their yard.

Other hazards which should be removed from children's outdoor play areas are poisons and chemicals. Storage areas for poisons and chemicals should have lockable child resistant doors, which are out of the reach of children. To discourage children from playing with or near chemicals and poisons, children's toys should be stored separately from all dangerous items in the garage, including power tools and garden tools.

All outdoor paving and stairs should be slip resistant. Stairs should include handrails and, where appropriate, protective barriers.

Drowning has been identified as the number one cause of death for children less than four years of age. Domestic swimming pools are the most common location for child drowning to occur. Children drown in back yard pools when there is inadequate or no pool fencing, a lack of self-closing, self-latching security gates, inadequate child supervision and a lack of resuscitation skills in parents and carers.

It is imperative that pool safety (fencing, security gates, security locks) meets and is maintained in accordance with New South Wales Legislated Standards.

It is also important to note that children do not only drown in back yard pools. Children can drown in as little as 5cm of water. And buckets, pots or fishponds filled with water pose a serious drowning risk for young children.

RECOMMENDATIONS

Outdoor Design

- Play areas must be visible from the kitchen and as many other areas of the house as possible ie laundry and living/family room.
- The outdoor area should be surrounded by a fence, a minimum of 1200mm high, to prevent access. Any gates should be self-closing and self-latching and have child resistant locks complying with AS 1926. Fences must be constructed to discourage climbing and should not provide footholds for climbing.

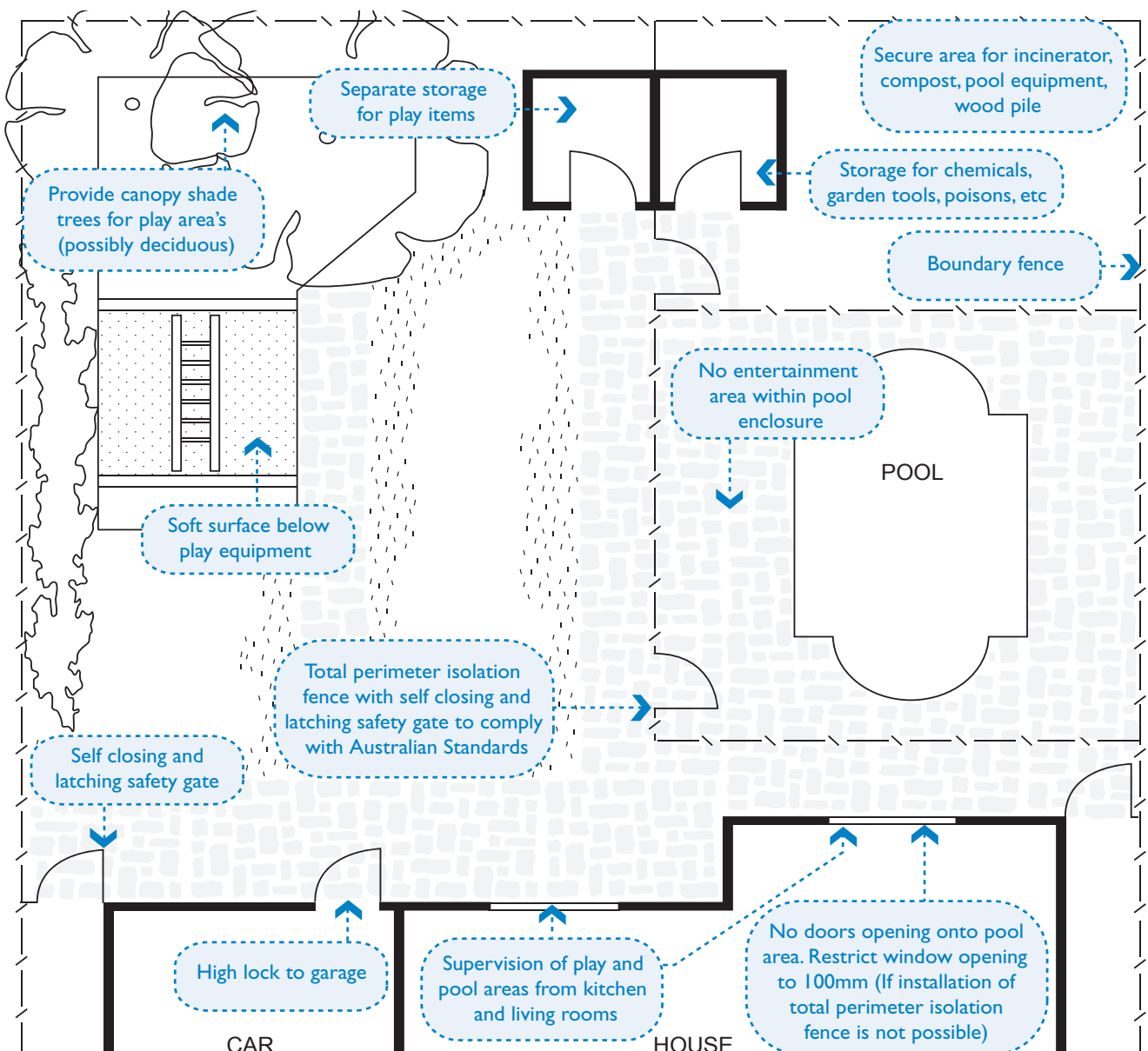
Outdoor Modifications

- Locate climbing equipment over a soft, cushioned surface such as wood chips which should be maintained at a minimum depth of 250mm, sand, or rubber matting. Thick lawn is not adequate.
- For outdoor play equipment refer to AS 4685. Whilst not covering domestic installations these Standards give the minimum guidelines for equipment for all ages and should be used as the minimum benchmark.
- Locate all swings away from traffic areas, over a soft surface, and ensure the seat is of a lightweight and impact absorbing material. Refer to the Kidsafe Playground Advisory Unit's Playground Safety Files.

- Ensure sandpits are in partial shade, well drained and the borders are rounded and the sandpit is covered when not in use.
- Locate all climbing equipment and garden furniture away from pool fences to prevent children gaining access to pools by climbing on furniture or climbing equipment.
- Install a lockable storage cupboard in the garage for storage of poisons, chemicals, tools etc.
- Ensure all external steps are well marked and well lit.
- Ensure all outdoor paved areas are slip resistant and are designed so that surface water drains away easily.
- Do not plant toxic and/or poisonous plants, also provide shade trees over play areas. For more information refer to the Kidsafe Playground Advisory Unit's book *'Plants for Playspaces'*.

HAZARDS

- **Drowning in swimming pools, spas, fish ponds and fountains**
- **Falls onto hard surfaces or sharp objects**
- **Access to vehicle manoeuvring areas, roads and other dangerous areas, eg drains, gullies, creeks etc**
- **Burns from barbecues, incinerators and hot spa water**



OUTDOOR

PLAY AREAS

cont'

Pools

- Swimming pools, in-ground and above ground, fixed child wading pools and outside spa baths deeper than 300mm must be isolated from other areas, including the house, by secure fencing to restrict access by young children to the immediate pool surround. Fences must comply with AS 1926, which also requires pool gates to be self-closing and self-latching and that the child resistant lock on self latching child resistant gates be as high as possible. All pool fences must be resistant to climbing, have uprights no more than 100mm apart and a clear span of no less than 1200mm between the horizontal rails. It is also important they do not obscure a clear view of the pool.
- To prevent any possibility of head entrapment ensure fence verticals finish flush with the top rail of the fence.
- Regular inspection and maintenance of pool gates and latches is necessary to ensure proper functioning of safety equipment. Never allow pool gates to be propped open.
- Do not locate climbing equipment and garden furniture in or near the pool fence as they could be used to help a child climb over the fence to gain access to the pool.
- Do not install or use non-pool equipment such as barbecues or patio furniture within the pool enclosure.
- Ensure pool surrounds are slip resistant and kept clear of tripping hazards eg outdoor furniture and toys.
- Ensure windows that may allow access to the pool do not open more than 100mm. However, it is recommended to have a total perimeter isolation fence around the pool.
- Ensure above ground pools have a removable ladder, which must be removed and safely stored when not in use.
- Ensure suction points in a pool or spa are protected to avoid dismembering when sat on by children.

Outdoor Safety Practices

- Ensure patio furniture does not pinch fingers, tip easily or fold up suddenly. Replace PVC caps to metal tube furniture.
- Ensure outdoor barbecues or incinerators are made inoperable for young children.
- Ensure the correct type of fire extinguisher is kept near the garage or workshop areas.
- Ensure automatic garage doors have the operating switch well out of the reach of a child. These doors must have a device to prevent further movement when an object is encountered.



HAZARDS >>>>

- > **Injuries from playground equipment and playground surfaces**
- > **Falls from stairs, verandahs, balconies or easily accessible roof tops**
- > **Access to poisons, fuel, chemicals, tools etc in garage or shed**

DOORS >

& WINDOWS

Depending on the child's age and developmental stage, different types of barriers and window restrictions are required.

Many barriers, which may be used throughout the home, can be of a moveable nature, as long as consideration is given to their stability. This enables the safety features of the home to change in accordance with the child's development and age.

Windows in children's bedrooms, or other rooms should have a restricted opening of 100mm. In many instances this restriction can be temporarily fixed into place and removed when it is no longer required.

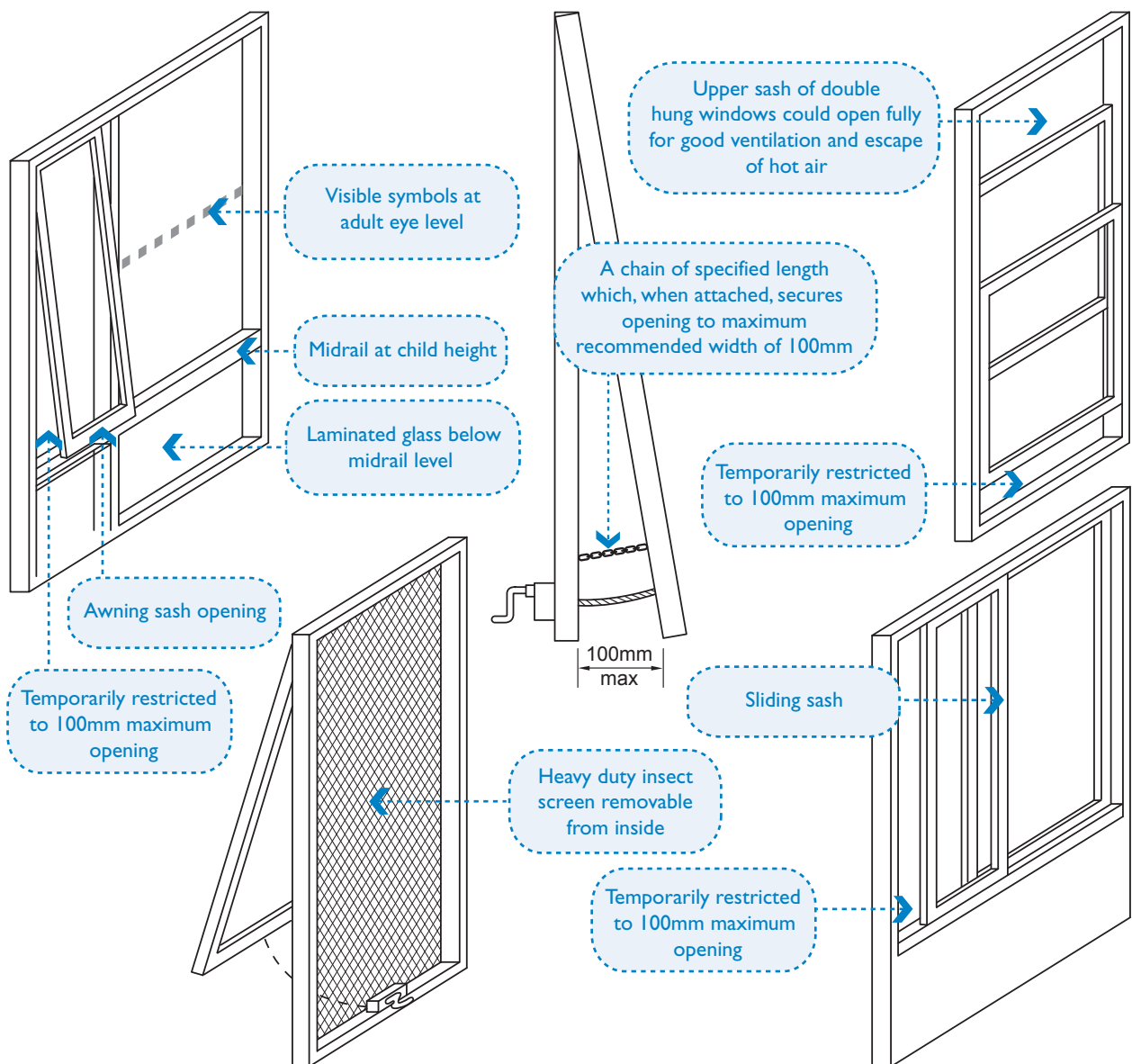
Children often slam doors shut or place their fingers near door jams, which can cause serious injuries to the fingers. Finger jam protectors are available to be fitted to doors to help prevent finger crush injuries.

RECOMMENDATIONS

- To prevent children from falling out of windows, all windows with sill heights less than 1500mm should have openings temporarily restricted to 100mm. As an alternative, consider fitting a substantial window screen or guard that can be readily removed by an adult in the event of an emergency or when no longer required. Restriction of window openings may contravene the ventilation requirements of the Building Code of Australia.
- Position furniture, fittings and play structures so they cannot act as a ladder to give children access to windows.
- Ensure low-level glass (*ie within one metre of the floor*) and glass with a surface area greater than 900mm square is laminated. **Refer to AS 1288.**
- Kidsafe recommends that safety glass or safety film be applied to all low level glazing in areas where children play.
- Fit full length glass windows, panels and doors with stickers or a mid-rail, and clearly mark at both adult and child eye levels to avoid accidents occurring from people walking or running into glass panels.
- In-cavity sliding doors are preferable, otherwise doors should be hung in such a way that they will swing against the wall.
- Ensure doors do not swing into children's play spaces.
- Fit hung doors with a 'hold open' system to prevent slamming.
- Door locks and latches to front, garage, laundry and kitchen doors should have a minimum mounting height of 1500mm.

HAZARDS

- › Falling from windows
- › Fingers jammed in doors or windows
- › Children struck by doors
- › Falling through glass windows or doors



STAIRS & >

BALUSTRADES

Stairs are potentially hazardous. The design of the stairs should be carefully considered and minimalist design should be avoided.

To protect children from falls associated with stairs and balconies, adequate safety features need to be incorporated into the design of indoor and outdoor stairs and balconies.

Stairs need to be protected by a balustrade to reduce the possibility of falling, and a handrail is required to assist movement on the stairs.

It should be remembered that short flights of stairs are less dangerous than long flights of stairs. The longer the stair flight the greater the potential is for injury.

RECOMMENDATIONS

The Stairs

The design of stairs should be in accordance with the Building Code of Australia. The following requirements should be observed:

- Avoid spiral stairs or winders.
- Ensure all flights of stairs have a hand rail (a minimum of 865mm vertically above the nosing) which permits continuous movement of the hand without obstruction.
- Avoid long flights - although up to 18 risers are permitted in any one flight, it is desirable to have fewer rises and 'U' or 'L' shaped stairs are preferred incorporating a landing. Ensure landings in a straight flight are at least three-tread lengths long.
- Ensure the newel posts at the top and bottom of the stairs provide for the fitting of stair gates. Gates must not provide a foothold and be a minimum of 865mm high. The gap below the gate should not exceed 110mm. Gates should not open over the stair flight.
- Open risers could permit a child to fall between the steps. Closed risers are recommended.
- Ensure treads are slip resistant, level and have an adequate width. Nosing also needs to be slip resistant, clearly delineated and should not be sharp. Ensure all coverings on stairs are firmly attached.

- Ensure the whole stair area is well lit by both natural and artificial light which should not cast shadows or be a glare source. Operate stair lights by means of two-way illuminated switches located at the top and bottom of stairways, such switches being accessible to children, eg. one metre high.
- Safety glass should be used in the vicinity of stairs.

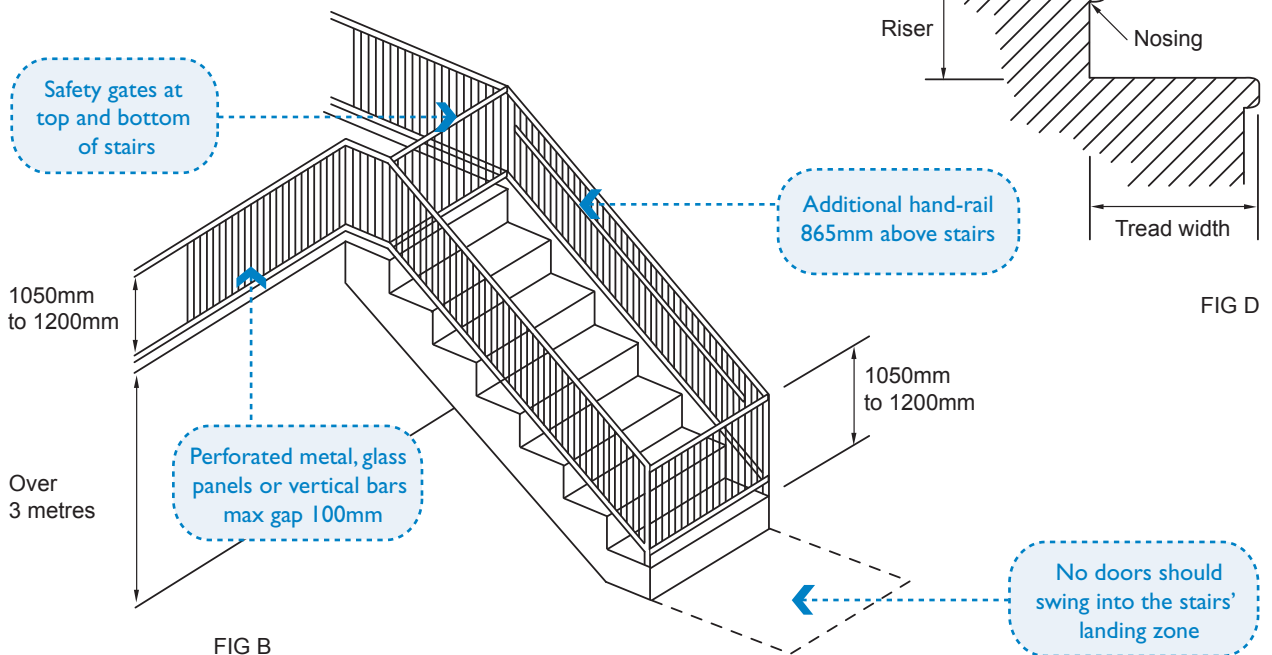
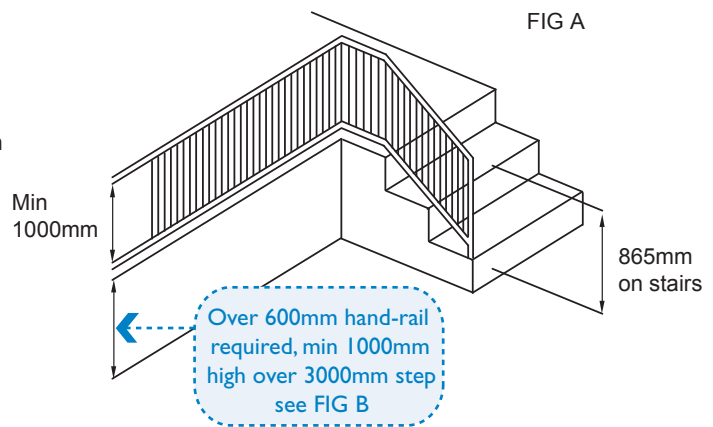
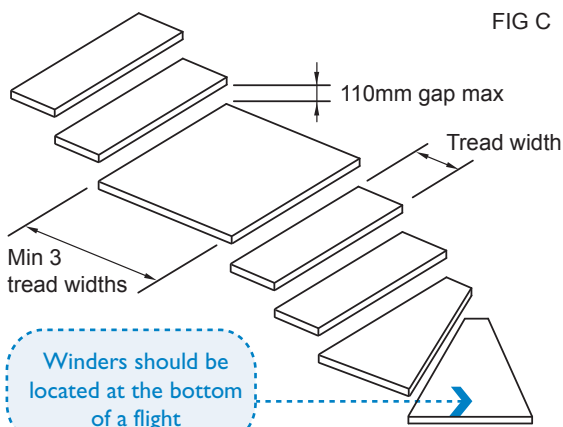
Balustrades

For stairs, balconies, verandahs and walkways any height differentiation greater than 600mm should be provided with a balustrade or hand rail.

- Kidsafe does not recommend wire balustrades.
- Balustrades on stairs must not be less than 865mm above the line of the nosing.
- When used on balconies, verandas and elevated paths the balustrade must not be less than 1000mm.
- Where children could fall more than three metres, balustrades on stairs must not be less than 1050mm, and on balconies and landings, a minimum of 1200mm and preferably 1350mm. In such cases, an additional hand rail could be provided on stair flights 865mm above the line of the nosing.
- Ensure the gaps between uprights are not greater than 100mm.

HAZARDS

- Fall from high levels
- Falls against glass
- Falls from stairs
- Head and limb entrapment



HOT WATER >

Hot water is essential in all homes and it is recommended that it is treated with caution, especially where children are concerned. Every year many children are admitted to hospitals as a result of hot water scalds. Hot water burns like fire and severe scalding can result in a child suffering major skin scarring. Most of these hot water scald injuries are preventable.

In many homes, hot water systems deliver water to the bathroom, kitchen and laundry between 65° C and 75°C. Australian Standards require hot water to be stored at no less 60°C to kill bacteria.

At 60°C hot water takes less than a second to cause a 3rd degree burn. At 50°C it takes approximately 5 minutes for a 3rd degree burn to occur.

The delivery temperature of hot water can be regulated by installing Thermostatic Mixing Valves, Tempering Valves or, where gas is used to heat the water, a Continuous Flow Hot Water System.

It should be remembered that a safe hot water bathing temperature for children and adults is 38° - 40.5°C.

RECOMMENDATIONS

Bathroom, Kitchen and Laundry Design

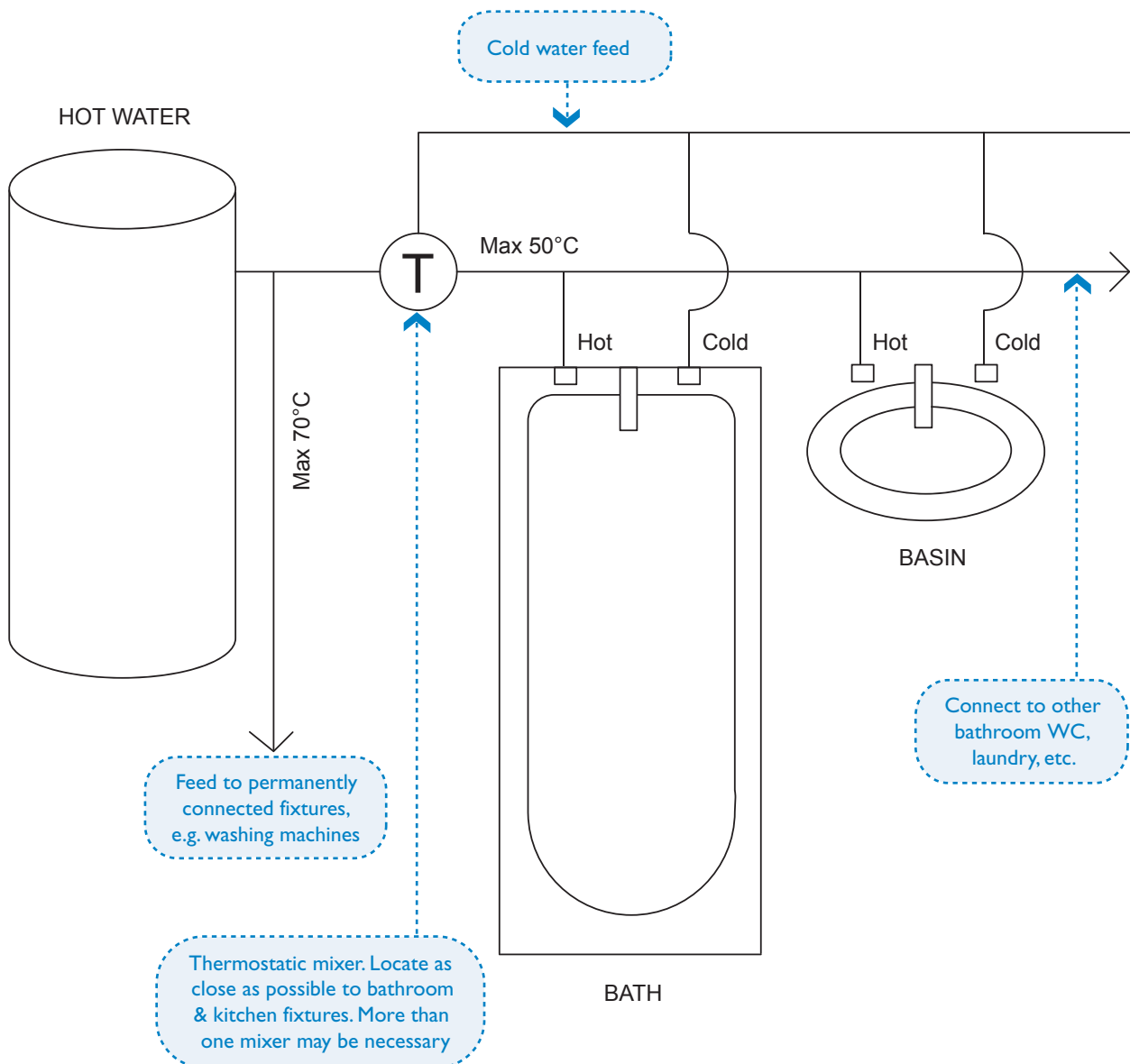
- All bathrooms in new built homes and fully renovated bathrooms in existing homes are now required to have hot water delivered to bathrooms to a maximum of 50°C.
- It is recommended for all new homes to also regulate the hot water delivery temperature to kitchens and laundries to a maximum of 50°C.

Bathroom, Kitchen and Laundry Modifications

- Fit thermostatic mixing valves or tempering valves to ensure hot water is not delivered above 50°C to the bathroom, kitchen and laundry.
- In bathrooms, where the water is not able to be adjusted, fit shut-off valves to taps and showers.
- With gas water heating systems it is recommended to install a continuous flow hot water system that can be easily set to varying delivery temperatures.
- Kidsafe also recommends the fitting of inexpensive tap caps to the hot water bath and basin taps. These prevent young children from turning on the hot water tap while they are bathing or washing their hands in the basin.
- It is recommended to seek the advice of a Plumber on the most appropriate temperature controlling device for your home.

HAZARDS

Scalding



HEATING SYSTEM & FIRE PREVENTION

The majority of burns which occur to children in the home are caused by scalds from hot water or hot beverages such as tea or coffee. However, children are also vulnerable to contact burns from flames and radiant heat.

Contact burns, which occur in the home mainly effect toddlers who sustain burns by coming into contact with oven doors, irons and household heaters.

If heating devices are used in the home, adequate guards should be installed around the heater. Fixed heating devices should be well screened to prevent sparking and children's contact with the heater. Where possible, heaters should be wall mounted. This is especially important if heaters are installed in the bathroom and they should be installed out of water splash range.

Another important consideration is children's nightwear. Ensure children's clothing is labelled 'Low Fire Risk'.

Many fatal household fires occur when the occupants are asleep. All homes contain flammable furnishings such as curtains, bedding and carpets. Fires produce not only carbon monoxide, but also other toxic gasses from furnishings, which can place people in a deeper sleep once the fire has started.

RECOMMENDATIONS

- Ensure heaters of all types (including open fires and slow combustion heaters) have a sturdy, secure screen to prevent access by children and to stop sparks or flames from flying out. They must be positioned far enough away from the source of heat to prevent overheating.
- Do not use electric floor radiators and kerosene heaters as they are dangerous to children.
- Ensure gas stoves have self-lighting burners and child resistant taps and knobs.
- Where possible ensure fitted heaters are firmly anchored to the wall or floor to prevent them being tipped over.
- Ensure fuel stove chimneys are well insulated.
- Ensure exhaust fans are ducted directly to outside air as the gradual build up of fats and dust constitutes a fire hazard.
- Ensure heated rooms are well ventilated.
- Place smoke alarms or detectors in accordance with minimum BCA requirements and NSW legislation.
- Position appropriate fire control measures, eg fire blankets and extinguishers in readily accessible places.
- Do not use building materials, wall or floor coverings and bedroom furnishings which are readily flammable, or which emit toxic fumes, when burned.
- All homes should have an evacuation plan. At the time of designing the house, consideration must be given to the needs of evacuating children and the family in the event of fire. It is recommended that wherever practicable, the house or other dwelling should have two separate escape routes, one of which may be a window, from each floor and each room. An escape route from the bedrooms must not pass through the kitchen or lounge/living room as these areas are the most common for the occurrence of night-time fires.

Reference has been made to fire blankets and extinguishers. In the case of fire extinguishers, there are a number of different types of portable extinguishers available and it is important to know which extinguisher to use for a particular fire and how to use the extinguisher correctly. Some types of extinguishers can be extremely dangerous to use on certain fires and can increase the fire and reduce your safety, ie a water extinguisher if used on flammable liquid, electrical fires and cooking oil or fat fires.

HAZARDS

- > Burns
- > Asphyxiation
- > Chemical inhalation including carbon monoxide

However, for the home, it is recommended to have a fire blanket and a dry powder extinguisher. These are the most versatile to have on hand and they should be located near the entrance to the kitchen where they can be reached in an emergency.

It is recommended that household owners and occupiers contact their local Fire Brigade service or visit the NSW Fire Brigade website on www.fire.nsw.gov.au to find out which type of portable extinguisher is the most appropriate for use within the home.

Smoke Alarms

It is of great importance that smoke alarms are fitted throughout the home to give all occupants early warning of fire and the time to evacuate the house.

Most house fire fatalities occur while people are asleep. A smoke alarm is an effective early warning device designed to detect smoke and alert occupants to the presence of a fire. Installed in the correct location, the sound of the alarm increases the time available for occupants to escape the fire.

Smoke alarms suitable for installation in homes can be either hard-wired to the electrical supply with battery backup or battery powered. Kidsafe recommends, where possible in existing homes, hard-wired alarms be retrofitted. It is also recommended that a suitable number of alarms be installed and that the alarms can be heard particularly in a large house.

The NSW Parliament enacted legislation which required, from 1 May 2006, the installation of smoke alarms in existing buildings in which people sleep.

The legislation requires owners affected by the law to be responsible for ensuring smoke alarms are installed. The NSW Government Department of Planning has developed guidelines setting out the type of smoke alarms to be installed in each type of building. A summary of these guidelines follows:

Type of Building	Type of Smoke Alarm
<input type="checkbox"/> Private dwelling <ul style="list-style-type: none"> ■ detached house, terrace house, town house, villa unit ■ apartment, unit, flats ■ caretakers flat, single residence above shops ■ relocatable homes 	<input type="checkbox"/> hard-wired to the mains electricity power supply (with battery backup) or <input type="checkbox"/> powered by a battery
<input type="checkbox"/> Shared accommodation <ul style="list-style-type: none"> ■ Small boarding houses, guest houses, hostels, backpacker and bed and breakfast accommodation, 	<input type="checkbox"/> hard-wired to the mains electricity power supply (with battery backup) or <input type="checkbox"/> powered by a non-removable 10-year long-life battery permanently connected to the smoke alarm

Where the use of an area is likely in a smoke alarm being inappropriately activated, eg, in a kitchen, a heat alarm may be used in lieu of a smoke alarm.

While maintenance of smoke alarms is not mandated, a check of the smoke alarm operation should be carried out every six (6) months.

More detailed information regarding smoke alarm requirements, recommended locations and the legislation is available from the NSW Department of Planning at www.planning.nsw.gov.au and the NSW Fire Brigades at www.fire.nsw.gov.au

The danger associated with electrical injuries warrants specific care and safety design features to be incorporated throughout the whole home. Injuries resulting from electrical accidents are particularly serious.

Residual Current Devices (RCD) are mandatory for all new homes and should be considered essential for all existing homes. A Residual Current Device often referred to as a Safety Switch is able to detect any flow of current to earth and will immediately cut off power should an earth fault occur. This could be through a person, faulty electrical goods, or from children playing with electrical outlets. The RCD will switch off the power in 1/30th of a heart beat.

It is also important to recognise the dangerous mix of water and electricity. Extra care should always be taken around water as it conducts electricity.

Electrical outlets should be located well away from all water splash areas in the house.

Finally, remember to maintain all of your electrical goods. Call your local electrical contractor for information on maintenance and repair to electrical equipment.

RECOMMENDATIONS

- Ensure Residual Current Devices (RCD) are fitted to protect individual circuits in the house (lighting and power). An RCD should be fitted to protect each circuit so that all electricity is not disconnected when a fault occurs.
- For child safety, it is recommended that a switch-board type be used. Detailed information is available from the NSW Department of Energy.
- Regularly test RCDs, at least three to four times each year.
- In older homes, in the interest of safety, replace porcelain fuses with mains operated circuit breakers (MOCBs) incorporating RCD's.
- Provide waterproof outdoor power points for outdoor areas. This avoids the increased risk of using long or multiple extension leads.
- Do not locate power points or electrical appliances near water unless specifically designed for the purpose.
- Provide sufficient power points to avoid trailing flexes and double adapters.
- Ensure power points mounted less than 1500mm above the floor are safety-shuttered or plugged where RCDs are not fitted.
- Ensure light switches are accessible to children.
- When purchasing an existing home, have a safety check completed by a licensed electrical contractor. Such safety checks should be carried out every ten years.
- In the kitchen, position electrical outlets close to work surfaces where appliances are used and away from the sink area. A minimum of 6 electrical outlets is recommended. Locate power points at the back of benches and set at 250mm above worktops.
- In the bathroom, place all electrical outlets so that appliance cords do not extend across basins, or vanity units. A minimum of 2 electrical outlets is recommended. Ensure outlets are not within splash area of bath, shower or basin.
- In the laundry, a minimum of 2 power points is recommended (4 is desirable) and ensure they are fitted away from splash areas.

➤ HAZARDS ➤➤➤➤

- **Electrical shocks**
- **Electrical burns**
- **Electrocution**

FAMILY DAY >

CARE & HOME BASED CARE FACILITIES

Homes that are used for Family Day Care and Home Based Child Care purposes must meet current regulations and child safety obligations as specified by the NSW Department of Community Services.

Kidsafe recommends that any person who is considering establishing a home as a Family Day Care Centre or Home Based Children's Care facility read the relevant Regulation which is the 'Children's Services Regulation 2004'. The Regulation includes such facility and equipment requirements as:

- Laundry facilities
- Food preparation areas
- Toilets and washing facilities
- Nappy change facilities
- Sleeping facilities
- Storage facilities
- Swimming Pools
- Play equipment
- First aid kits
- Fire Safety equipment
- Ventilation, lighting and heating
- Fencing
- Glass
- Cleanliness, maintenance and repairs

It is also recommended that building information also be sought from local Councils before any home is altered or modified to meet the requirements, as specified in the "Children's Services Regulation 2004", of a Family Day Care or Home Based Children's Care facility. Councils may have additional facility and equipment requirements to meet.

Further information on Family Day Care and Home Based Care requirements can be obtained from the Department of Community Services website: www.community.nsw.gov.au. Select 'Child Care Services', then 'Providing Children's Services, then 'Regulations.'

The 'Children's Services Regulation 2004' is publicly available from the Government Sales and Information Service on (02) 9238 0950 or from website: www.legislation.nsw.gov.au.



Child Accident Prevention Foundation of Australia

New South Wales Inc

Kidsafe House
Hainsworth Street
Westmead

Locked Bag 4001
Westmead NSW 2145

(02) 9845 0890 (Phone)

(02) 9845 0895 (Fax)

Kidsafe @chw.edu.au (email)

www.kidsafensw.org