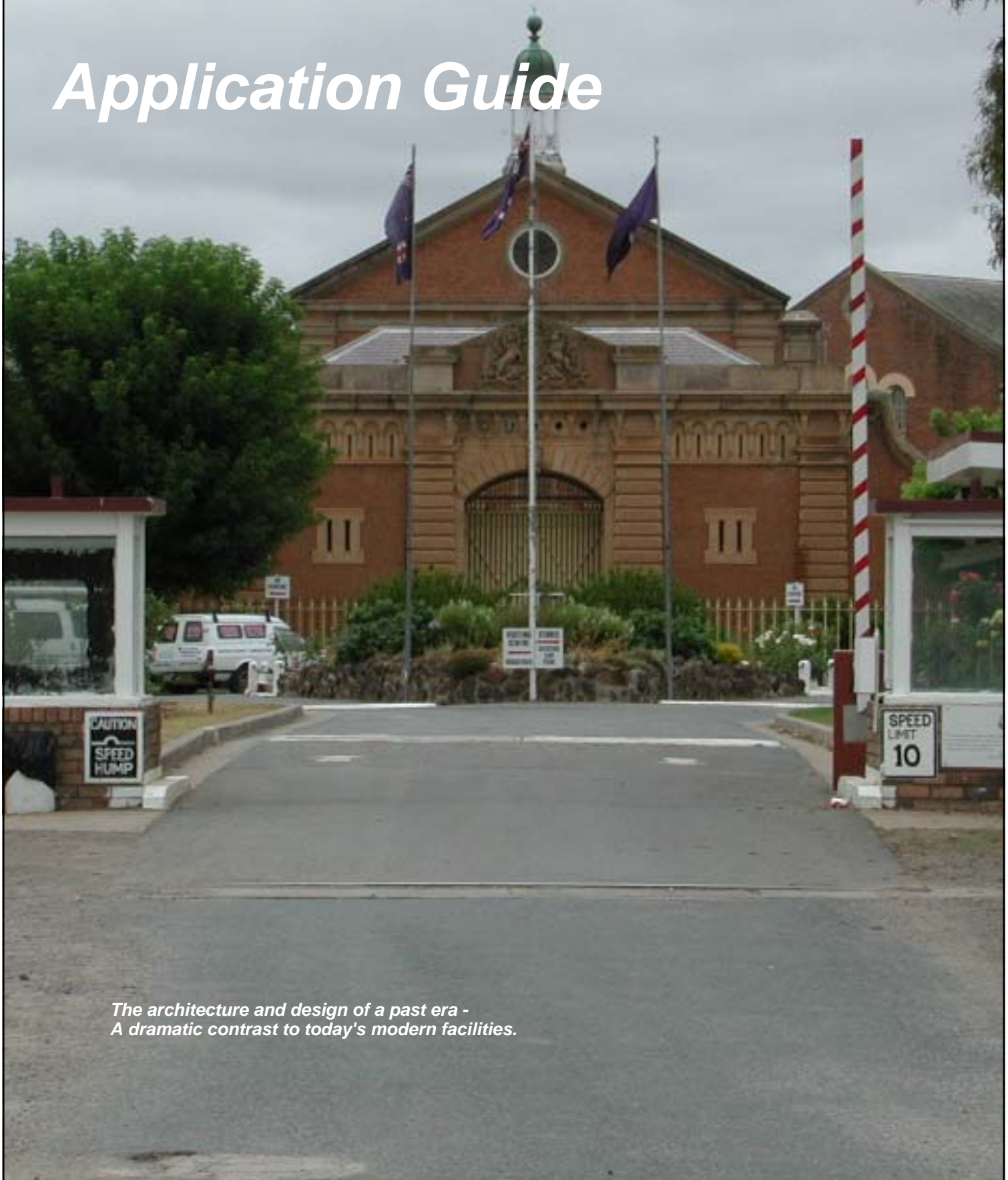


Polycarbonate Cell Mirrors For Correctional Centres & Secure Wards

Application Guide



*The architecture and design of a past era -
A dramatic contrast to today's modern facilities.*

Safety - Security - Perfect Observation

Polycarbonate Convex Mirrors for Correctional Centres & Secure Wards

With the assistance of Architects and Prison Authorities, we have introduced a range of unbreakable polycarbonate mirrors designed specifically for detention centres, prisons, secure wards and high risk areas. The mirrors are supplied with a fully captive steel frame in your choice of coatings providing a safe and secure method of observation. Chosen as the propriety item for unsurpassed quality and design, our mirrors set the benchmark in mirror technology.

- **Avoid attacks**
- **View cells before entering**
- **Safe unbreakable polycarbonate mirror**
- **Observation of day rooms & recreational areas**
- **Simple installation**



One of the modern cells nearing completion at a Correctional Centre. Note the corner mounted cell mirror providing vision behind the shower wall.

In some cases existing wall fixtures or cell layout prevent wall mounted cell mirrors being used. Ceiling mounted full dome mirrors provide excellent coverage of the complete cell.



Acril Convex Mirrors ~ Superior Quality ~ Superior Design

Applications - Range of Models - Placement

Applications

For observation and surveillance in areas such as cells, corridors, dayrooms, resource rooms, gymnasiums and other areas where prisoners and patients need to be observed.

Cells

Officers, wardens and nurses are able to view the inmate to see if it is safe to enter and that no-one is concealed behind the door immediately before entering.

The prisoner or patient can be observed on routine security checks through the door observation window without the need to enter the cell.

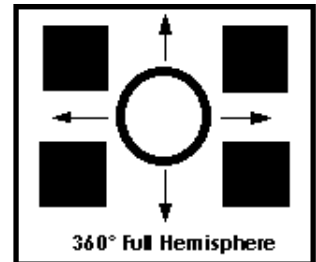
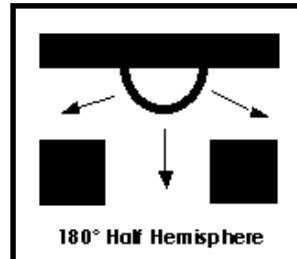
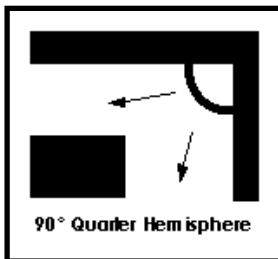
Corridors

To prevent surprise attacks at corridor corners. For surveillance and avoiding collisions at right angle, "T" Junction and cross corridor of all institution buildings.

Placement as illustrated.

Day Rooms - Resource Rooms

Staff can monitor inmates easily and safely as Convex Mirrors will give full viewing of recreational areas requiring supervision.



90° Quarter Dome Mirrors

Available in two sizes - 300x300mm and 600x600mm. The mirror is installed at the top far corner of the cell, allowing full viewing of the cell from the door observation window.

180° Half Dome Mirrors

Available in two sizes - 600x300mm and 900x450mm. The mirror is installed at the top of the side wall to give a wide angle reflection of the cell or room.



360° Ceiling Dome Mirror

Available in two sizes - 450mm and 600mm.

The mirror is installed on the ceiling giving 200° vision from any observation position. The Ceiling Dome is a very versatile mirror in that positioning is not as critical. For entering or checking cells, the officer can view the entire cell from the door observation window and where applicable can view a shower area behind a divider wall in the cell and back to either side of the door.



Enhanced Design

All frames are supplied with recessed mounting holes while tabs have been replaced with smooth flowing flanges for maximum aesthetics. All possible lynching points are completely eliminated for maximum safety of the cell occupants and optional hi-density foam filled inserts are available for all styles.

CCTV - Materials - Installation - Modification

C.C.T.V.

Prisons have found that even cells with C.C.T.V. for constant monitoring may require a convex mirror for the safety of Officers entering the cell. Officers can observe where the occupants are prior to entering the cell or maintain supervision of the entire cell.

Materials

- Polycarbonate has a very high impact strength which makes it resistant to repeated blows, shattering and spalling.
- Polycarbonate also has a high heat resistant (240°).
- The mirrors are fitted in a powder coated steel retaining frame to secure the mirror face. The frame has been designed to eliminate potential lynching points with all mounting holes recessed and smooth curved surfaces maximised.
- After exhaustive tests, our mirrors proved to be of the highest quality and withstood rigorous testing where others failed.

	ASTM Method	Unit	Value
*Tensile Strength	D 638	psi	4,500
*Impact Strength	D 256	ft-lb/inch	17.0

*Data collected from the sheet manufacturer specifications

Installation

Installation is fast and easy using a 50mm x 6.5mm Rawl Spike Anchor (See Photo) or any other recognised fixing method. The powder coated steel flange has sufficient 8mm mounting holes for a secure and simple installation.

Modification

- Our mirrors have been designed in conjunction with institutional architects and the Department of Corrections.

We can design and manufacture to meet your specific requirements.

This range of polycarbonate mirrors has been designed specifically for high risk areas. In addition to the above, we have a complete range of acrylic and stainless steel convex mirrors for general purpose use. For indoor or outdoor use, we have mirrors suitable for your applications. Observation, avoiding collisions and for all viewing areas where vision is impaired or obscured, convex mirrors can be utilised.

Viewing Cells and Easy Installation



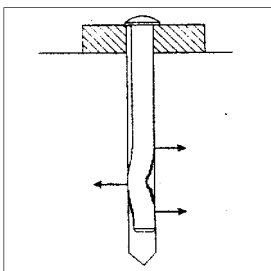
Viewing from the cell door

The ceiling dome allows an Officer to view the entire cell to ensure their safety before entering. This includes the area behind the shower wall which would otherwise be concealed. The Officer simply looks through the window in the cell door to observe.

**The Golden Rule
The Larger the Mirror
The Larger the Reflection**

For concrete block walls the Rawl Splayed Spike is suitable. The spike has a mushroom head and once installed cannot be removed. The Ceiling Dome provides up to 200° vision from any angle and so reflects the entire cell while the edge of the mirror is covered in a powder coated steel ring to prevent removal or secretion of objects.

Depending on the cell room layout, Quarter Face and Half Face versions maybe appropriate.



- Installers at the prison using 50 x 6.5 mm Powers Rawl Spike.

Use of the Spike anchor reduces installation time. Since the anchor is pre expanded, there is no secondary tightening operation required.

The mushroom head eliminates any danger of the spikes being tampered with and are non-removable.



Registered Australian Design



The following photographs demonstrate the application of our half dome, ceiling dome and quarter dome mirrors. Use the half domes in the centre of a wall, the quarter domes in corners and full domes on ceilings. Each is supplied with a captive frame. Our design removes ugly mounting tabs and all mounting holes are fully recessed for added security. Lynching points are completely eliminated.

Persons observing the cell can view the entire room safely from outside and can enter with advance warning as to the exact location of the occupants.

**IP Australia design registration -
142608, 142609, 142610 apply**



Vanity Mirrors

Our vanity mirrors are designed specifically for use within the cell. Each mirror is made from scratch resistant unbreakable polycarbonate mirror. The mirror is supported by a steel powder coated outer frame and bonded to an internal high density board to provide superior strength with an excellent mirror image. Available in two standard sizes 400 x 300 and 600 x 400 or made to order.



Acril Convex Mirrors ~ Superior Quality ~ Superior Design

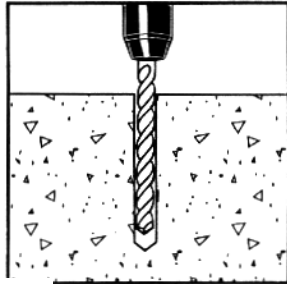
Installation with Spikes

Recommended Fixing Method for Polycarbonate Convex Mirrors

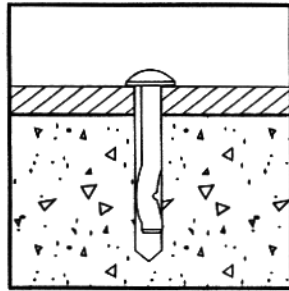
Powers Rawl SPIKE®

Installation Procedures

Drill a hole into the base material to a depth of at least 13mm deeper than the embedment required. The tolerances of the drill bit used should meet the requirements of ISO/DIN Standard 8035. Blow the hole clean of dust and other material.



Where a fixture is used, drive the anchor through the fixture into the anchor hole until the head is firmly seated against the fixture. Be sure the anchor is driven to the required embedment depth. The Tie-Wire and Pipe SPIKE versions should be driven in until the head is seated against the surface of the base material.



Anchor Sizes and Styles

The following tables list the many sizes and styles of SPIKE anchors. To select the proper length, determine the embedment depth required to obtain the desired load capacity. Then add the thickness of the fixture, including any spacers or shims, to the embedment depth. This will be the minimum anchor length required. On the Tie-Wire and Pipe SPIKE versions, no fixture is used. These anchors should be driven in until the head is seated against the surface of the base material.

Mushroom Head Carbon Steel SPIKE®

Cat No.	Part No.	Anchor Size (mm)	Drill Dia.	Min. Embed.	Std. Box	Std. Ctn.	Wt./100 (kg)
1013	MH53MM	5 x 25	5mm	22mm	100	1000	0.6
1016	MH510MM	5 x 32	5mm	22mm	100	1000	0.7
1017	MH56MM	5 x 38	5mm	32mm	100	1000	0.8
1018	MH518MM	5 x 50	5mm	32mm	100	1000	0.9
1019	MH653MM	6.5 x 25	6.5mm	22mm	100	1000	0.7
1197	MH657MM	6.5 x 32	6.5mm	25mm	100	1000	1
1021	MH656MM	6.5 x 38	6.5mm	32mm	100	1000	1.1
1023	MH6519MM	6.5 x 50	6.5mm	32mm	100	1000	1.4
1006	MH6532MM	6.5 x 64	6.5mm	32mm	100	1000	1.8
1024	MH6544MM	6.5 x 75	6.5mm	32mm	100	1000	2
1145	MH6556MM	6.5 x 89	6.5mm	32mm	100	1000	2.3
1026	MH6568MM	6.5 x 100	6.5mm	32mm	100	500	2.7
1235	SMH840MM	8 x 40	8mm	35mm	100	1000	2.5
1236	SMH1050MM	10 x 50	10mm	40mm	25	250	3.6
1237	SMH1075MM	10 x 70	10mm	40mm	25	250	4.5
1238	SMH1095MM	10 x 100	10mm	40mm	25	250	5
1239	SMH1260MM	12 x 60	12mm	50mm	50	200	7
1240	SMH1275MM	12 x 75	12mm	50mm	50	200	9.5
1241	SMH12100MM	12 x 100	12mm	50mm	25	150	12

The published length is measured from below the head to the end of the anchor

Mushroom Head Type 316 Stainless Steel SPIKE®

Cat No.	Part No.	Anchor Size (mm)	Drill Dia.	Min. Embed.	Std. Box	Std. Ctn.	Wt./100 (kg)
1027	MH53MMSS	5 x 25	5mm	22mm	100	1000	0.6
1038	MH510MMSS	5 x 32	5mm	22mm	100	1000	0.7
1028	MH56MMSS	5 x 38	5mm	32mm	100	1000	0.8
1144	MH519MMSS	5 x 50	5mm	32mm	100	1000	0.9
1171	MH653MMSS	6.5 x 25	6.5mm	22mm	100	1000	0.7
1175	MH657MMSS	6.5 x 32	6.5mm	26mm	100	1000	1
1029	MH656MMSS	6.5 x 38	6.5mm	32mm	100	1000	1.1
1037	MH6519MMSS	6.5 x 50	6.5mm	32mm	100	1000	1.4
1176	MH6532MMSS	6.5 x 64	6.5mm	32mm	100	1000	1.8

The published length is measured from below the head to the end of the anchor

* Recommended Size



- All mounting holes are recessed to eliminate lynch points. Critical for complete safety.
- Use of the Spike anchor reduces installation time. Since the anchor is pre expanded, there is no secondary tightening operation required.
- The mushroom head eliminates any danger of the spikes being tampered with.

Improved design maximises safety

Over the years there have been many reported cases of deaths while in custody and a main cause is suicide by hanging. It would seem at first glance, difficult to find the means or opportunity to undertake such drastic action without alerting correctional officers. However, the process is quick, quiet and requires little in the way of a lynching point to be deadly effective. Contrary to popular belief the body does not need to be suspended by the neck. It can be as simple as a length of lightweight cord (eg shoelaces tied together) latched to a lynch point and used as a ligature. The victim simply leans to one side placing pressure on the arteries in the neck thereby restricting blood flow to the brain. The victim will slip quietly into a coma and death can result if there is no intervention. The purpose of this gruesome explanation is to demonstrate the importance of safe design of cell fixtures. Our latest IP Australia registered designs ensure that the risk of exposed lynching points are eliminated.

Mounting holes recessed

All mounting holes are recessed to ensure the heads of fasteners are below or flush to mounting surfaces. This prevents any likelihood of an exposed lynch point. As demonstrated below in this example of a surface mounted (not recessed) fastener, the installer has not driven the spike true to the mounting surface. This has left the head raised on one side and exposed a potential lynch point.



Head raised on one side creates lynching point



Hair line cracks caused by tab deformation allow entry of moisture and corrosion to take hold.

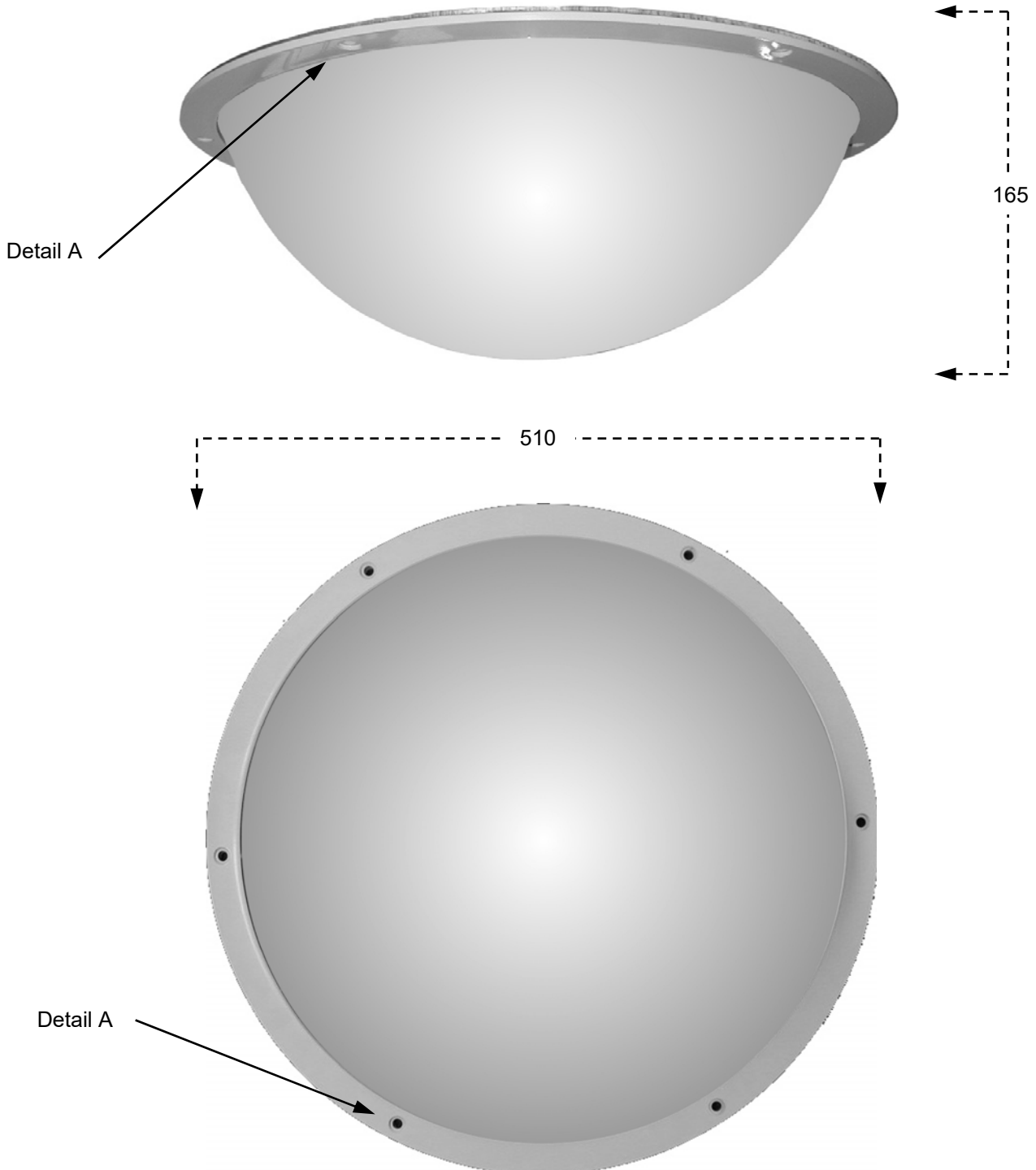


Smooth visual lines

We have done away with unsightly mounting tabs improving the overall look of the frames. Apart from the aesthetics of our frames, mounting tabs are structurally weak that may bend under the stress of installation. Our frames are supplied with fully rolled flanges that increase the rigidity of the frame thus preventing distortion and cracking of the protective coatings.

- Mounting tabs eliminated
- Improved visual lines
- Increased rigidity protects integrity of powder coating
- Optional hi-density foam insert for all styles

Polycarbonate Dome Mirror with Captive Frame - Aust. Design No. 142610

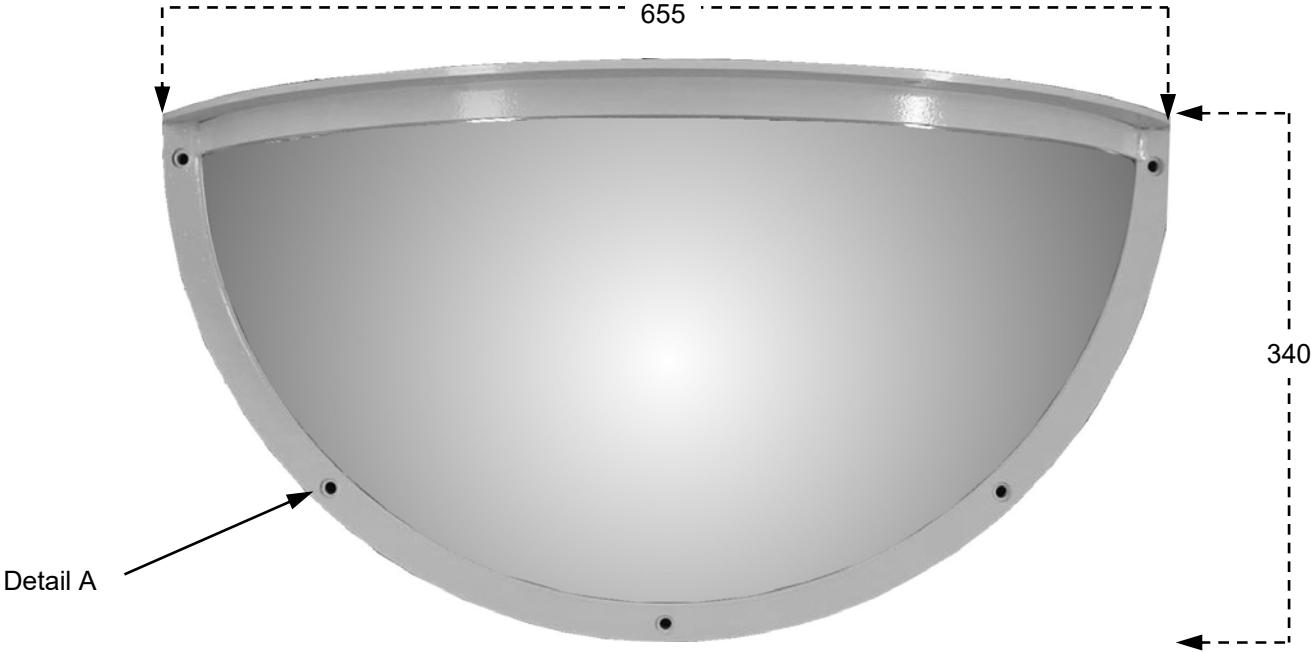


Polycarbonate ceiling dome mirror with frame.
The Australian design number is your guarantee of authenticity.
Quote the following number when specifying this product.

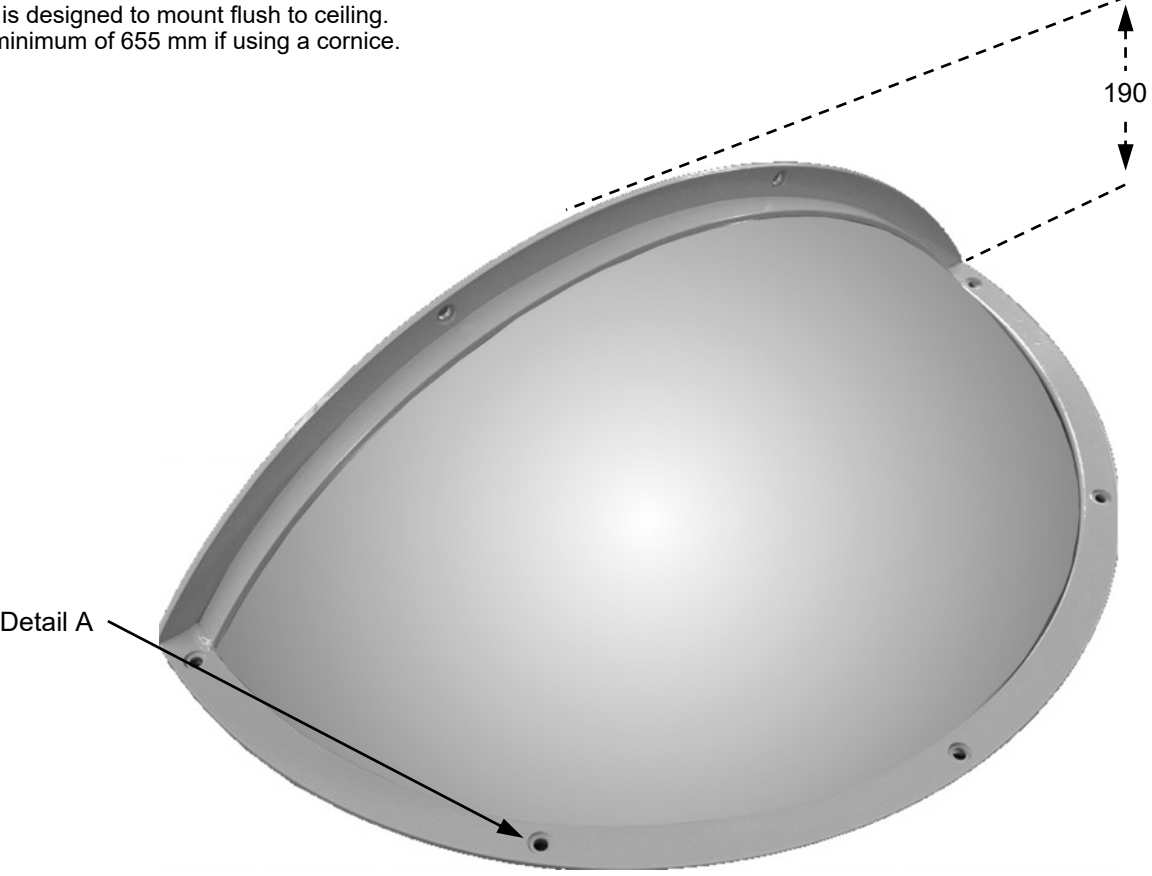
Australian Design Number 142610

- Other sizes available
- Mounting holes 8mm diameter.
- Frame 25 x 5 mild steel section
- Measurements allow for clearance
- Optional hi-density foam insert available

Polycarbonate Half Dome Mirror with Captive Frame - Aust. Design No. 142609



Note -
Frame is designed to mount flush to ceiling.
Allow minimum of 655 mm if using a cornice.

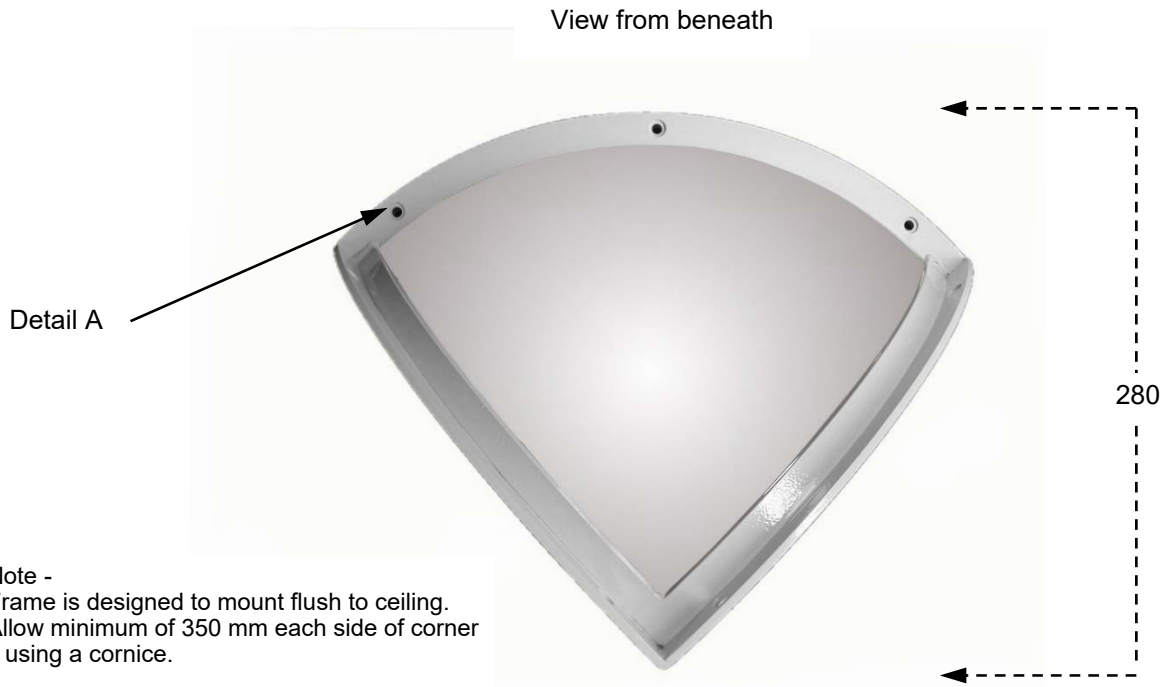
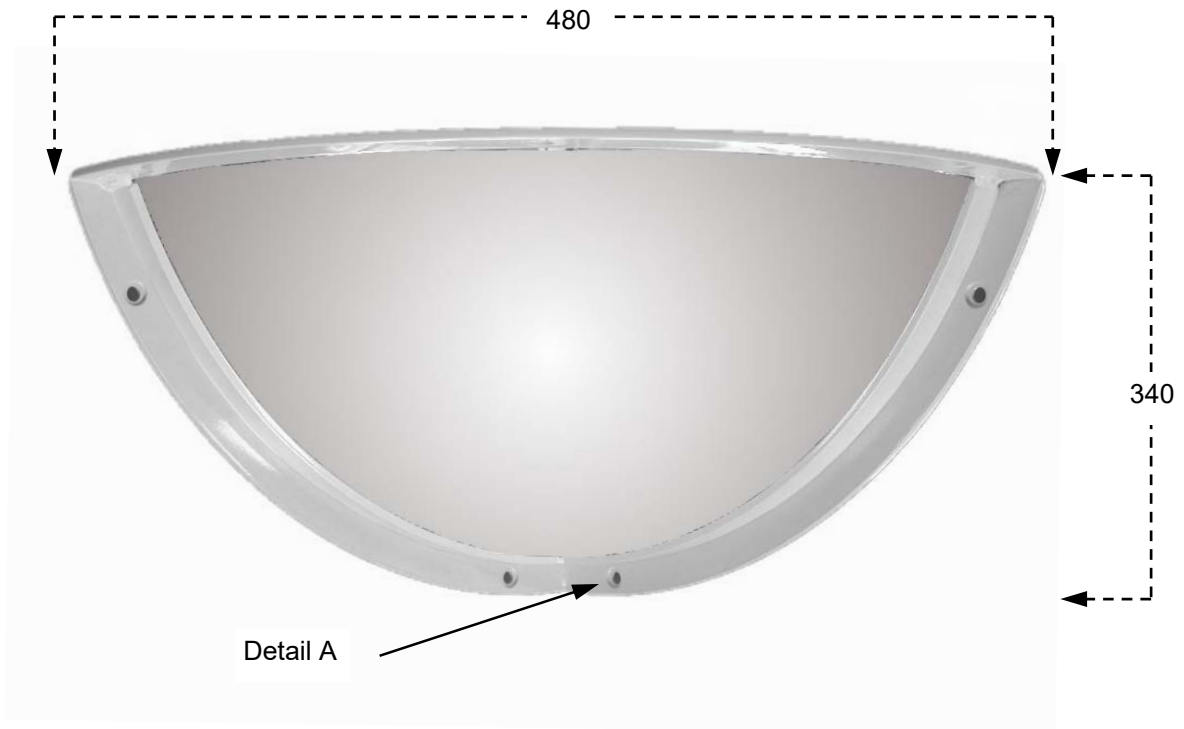


Polycarbonate half dome mirror with frame.
The Australian design number is your guarantee of authenticity.
Quote the following number when specifying this product.

Australian Design Number 142609

- Other sizes available
- Mounting holes 8mm diameter.
- Frame 25 x 5 mild steel section
- Measurements allow for clearance
- Optional hi-density foam insert available

Polycarbonate Quarter Dome Mirror with Captive Frame - Aust. Design No. 142608



Note -
Frame is designed to mount flush to ceiling.
Allow minimum of 350 mm each side of corner
if using a cornice.

Polycarbonate quarter dome mirror with frame.
The Australian design number is your guarantee of authenticity.
Quote the following number when specifying this product.

Australian Design Number 142608

- Other sizes available
- Mounting holes 8mm diameter.
- Frame 25 x 5 mild steel section
- Measurements allow for clearance
- Optional hi-density foam insert available

Close up of mounting hole detail 'A'



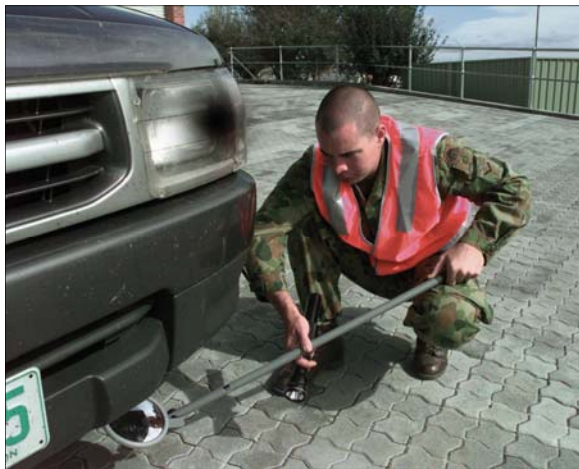
Detail A

- Mounting holes 8mm diameter.
- Frame 25 x 5 mild steel section

Acril Convex Inspection Mirrors

Inspection Mirrors - 2000 Olympics

We also manufacture a complete range of inspection and 'look-under' mirrors used in searching for contraband, bombs, drugs etc. As part of the security program for the Sydney 2000 Olympics the Australian Army acquired over 600 of our specially built inspection mirrors. Chosen over local and international competitors our mirrors were selected for their practical and robust design. Our inspection mirrors are also used in correctional centres, providing a valuable aid for the detection of contraband.



Acril Convex Mirrors ~ Superior Quality ~ Superior Design

Acril Convex Polycarbonate Mirrors

Used and preferred by all major building contractors.

Acril Convex cell mirrors are the propriety item specified by leading architects.

- Bovis Lend Lease
- Boulderstone Hornibrook
- Thiess Constructions
- Q-Build (State Govt)
- John Holland
- Tasklake
- Camarda & Cantrill
- Adco Constructions
- Fairbrother Facility Mgrs



Larger Projects -

- Woodford Correctional Centre (QLD)
- Arthur Goorie Correctional Centre (QLD)
- Sir David Longland Correctional Ctr (QLD)
- Walston Park Correctional Centre (QLD)
- Borallon Correctional Centre (QLD)
- Lotus Glenn Correctional Centre (QLD)
- Woodford Correctional Ctr Extension (QLD)
- Melbourne Juvenile Justice Ctr (VIC)
- Brisbane Youth Detention Centre (QLD)
- Brisbane Correctional Ctr (QLD)
- Goulburn Correctional Centre (NSW)
- Maryborough Correctional Centre (QLD)
- Port Headland Detention Ctr (WA)
- Arthur Goorie Refurbishment (QLD)
- Deer Park Women's Prison (VIC)
- Reiby Juvenile Justice Ctr (NSW)
- Risdon Men's Prison (TAS)
- Risdon Women's Prison (TAS)
- Christmas Island Immigration Ctr
- Port Phillip Men's Prison (VIC)

Approved by -

- Leading Architects
- Government Departments for Public Works, Project Services, Correctional Services
- IP Australia - Design Registration 142608, 142609, 142610 apply.

This booklet is also available on CD Rom and in various file formats. Please contact our office for more details.

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