

Smarter Security

A Guide to Specifying Multi-Use Security Screen Solutions



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THIS PAGE: Whole house Invisi-Gard security screens, Norman Gardens, QLD
COVER: Invisi-Gard fire attenuation screens, Ascot Apartments, QLD



INTRODUCTION

In commercial and residential projects, security systems are an important consideration for a building's ongoing occupation. In Australia, roughly 200,000 homes are broken into each year.¹ According to the Australian Bureau of Statistics, there were over 35,000 incidences of unlawful entry with intent in non-residential locations such as professional, retail and recreational premises in 2018.²

Burglaries and break-ins commonly occur through doors or windows. If not properly specified, all it takes is a screwdriver or a crowbar to force a door or window open. An unprotected door is a target for potential intruders, especially if it is not concealed or under constant surveillance.

Despite these risks, security screens are often overlooked in building design. As a result, security screens and doors are underutilised in Australian buildings. A high quality security screen can not only deliver elevated levels of security and peace of mind, it can serve multiple purposes as a fly screen, solar shading screen, fall prevention screen, bushfire protection screen and/or a fire attenuation screen.

Architects, designers and specifiers need to attain a balance between security goals and meeting other high priority design objectives and user needs. This can be challenging due to industry confusion over security screens and what sets them apart from standard screens or barriers, the need to choose the correct hardware and locking systems, and the existence of multi-use screens that do not meet the relevant Australian standards and requirements.

In this whitepaper, we provide a guide to specifying security screens and doors to maximise their effectiveness. We also consider the alternative uses of security screens to improve the safety, efficiency and comfort of Australian buildings.

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WHAT ARE SECURITY SCREEN DOORS?

Security screen doors are specially engineered and feature hardware and locking systems that are designed to keep intruders out. Some screen doors are only effective at keeping insects out or are act merely as visual deterrents – these solutions are sometimes known as “barrier doors” or simply “screen doors”.

Barrier doors and screen doors are not “security” doors as they can be penetrated with the right tools and levels of force. At the same time, some solutions advertised as “security screens” or “security doors” may not be able to withstand a forced entry attempt under strict performance testing conditions.

To avoid any further confusion, a true security screen door is a screen door that meets the requirements set out in AS 5039-

2008: *Security Screen Doors and Security Window Grilles* and has been installed in accordance with AS 5040-2003 *Installation of security screen doors and window grilles*. These Standards set out the design, performance and testing requirements for the strength and structural integrity of security screen doors and security window screens – a security screen door can only be labelled as such if it meets these requirements and can be proven to withstand a forced entry attempt.

In addition to its primary security purpose, security screen doors can offer additional benefits, including providing Bushfire Attack Level (BAL) protection, preventing falls and improving energy efficiency through shading. A multi-use solution must be carefully assessed to ensure it adequately meets the regulatory requirements for these ancillary uses.

SPECIFYING SECURITY SCREEN DOORS: KEY CONSIDERATIONS

MEETING SECURITY STANDARDS

When specifying security screens and doors, the first priority is ensuring that the solution meets the requirements of AS 5039-2008, which focuses on the solution’s ability to resist forced entry.³ Conformance with AS 5039-2008 is determined through testing by an accredited lab following the six testing methods set out in AS 5041-2003 *Methods of test - Security screen doors and window grilles*. The six tests to assess the suitability of security screen doors and windows are as follows:

- **Dynamic Impact Test**, which simulates the impact of a physical attack on the screen;
- **Jemmy Test**, which simulates an attempt by an intruder to lever the screen open with a screwdriver at the locking and hinge points;
- **Pull Test**, which tests the ability of a screen to resist being pulled out by an intruder;
- **Probe Test**, which simulates an attack where the intruder attempts to create a gap in the security screen through which they can unlock the door or window;
- **Shear Test**, which simulates an intruder attempting to cut open a security screen; and
- **Knife Shear Test**, which tests the ability of the security mesh to resist an intruder using a stanley knife.

Security screen doors should be tested and certified as compliant with AS 5039-2008. When selecting a security screen door, it is prudent to obtain the relevant testing documentation from the manufacturer to confirm the solution has passed AS 5039-2008.

Once the security screen door is installed, obtain a guarantee that the installer’s work complies with AS 5040-2003. An incorrectly installed security screen door will be less likely to successfully defend against an intruder.⁴

HARDWARE AND DESIGN CONSIDERATIONS

As the entry points for residential and commercial premises, perimeter doors and windows need to be solidly constructed and fitted with quality hardware, locks and other components.⁵

Frame: Security door frames should be strong and sturdy. A deep receiver channel for the grille will make forced removal difficult.⁶

Infill: There are a variety of infills available, including steel or aluminium bars, grille, sheets, or stainless steel mesh.⁷ Each option offers varying levels of security – some are purely decorative or made to appear secure, while others are specifically built for security.⁸ When selecting security mesh, note that a variety of mesh designs are available. The characteristics of the weave will affect views to the outside, airflow, optical clarity, shading and light control, the size of pests and debris that can enter through the mesh, and privacy levels.

Grille: Grille chords should be thick and securely fastened to door frame. Fastenings, whether they are rivets, screw clamps, plastic clamps or welding, must be designed so that they cannot be reached and/or tampered with.⁹

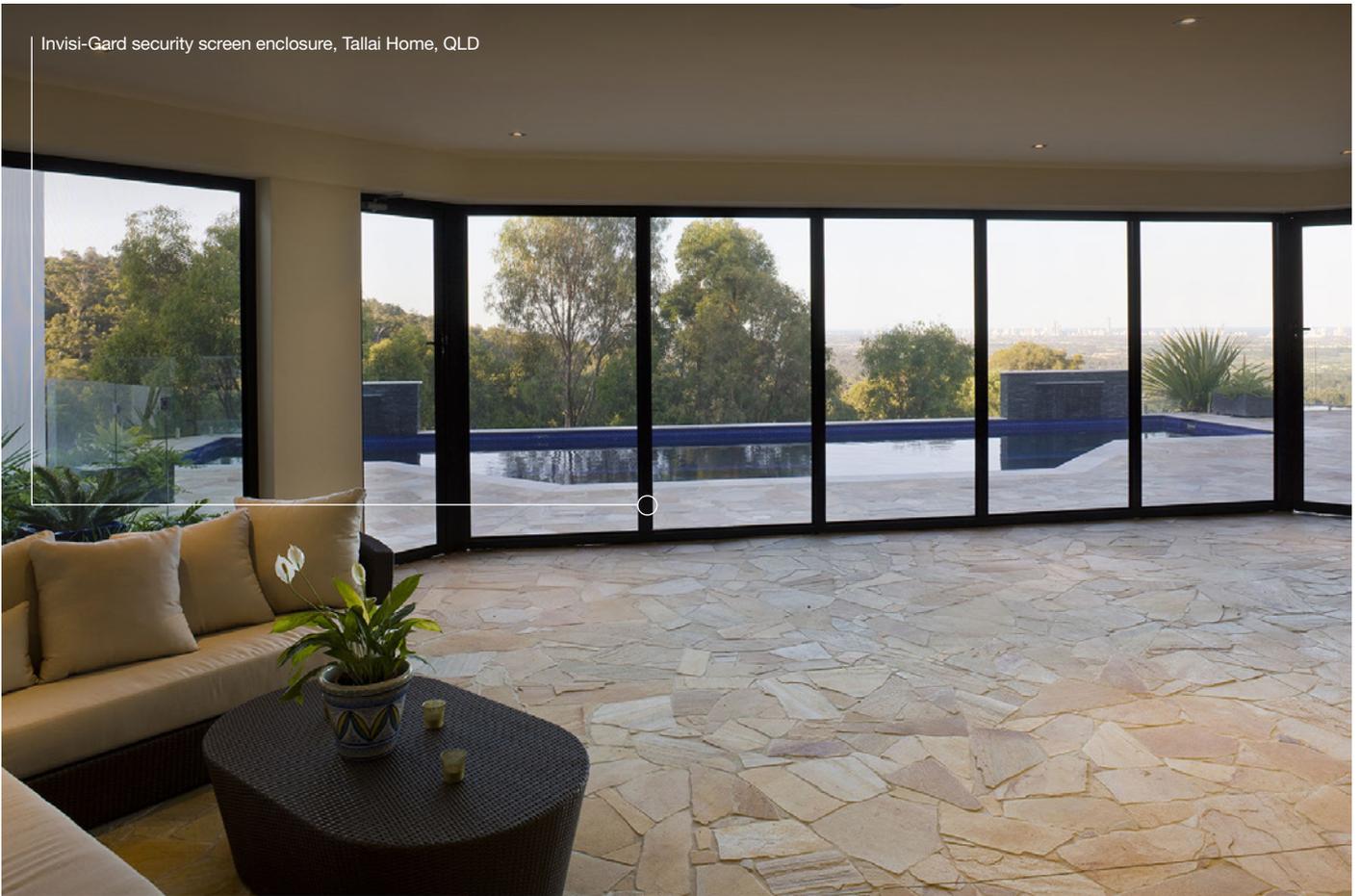
Locks: For better security, key locks should be five-pin cylinder and have three-point locking. Wafer locks are sometimes constructed by cheaper means and are generally easier to defeat.¹⁰

Hinges: Security screen doors should have a minimum of three hinges and feature fixed hinge pins that are unremovable.¹¹ For additional protection, fixed steel pins that are welded into the hinge leaf may be selected.¹² Hinges should be designed to prevent jemmying, for example by implementing recessed hinges or hinge filling between the door and frame.¹³

Corrosion Resistance: Given Australia’s harsh climate, especially along coastal areas, doors should have non-corrosive properties. Marine grade 316 stainless steel mesh with the greatest level of corrosion resistance should be specified. The Salt Spray Test set out in AS 2331.3.1-2001 *Methods of test for metallic and related coatings* is used to assess the corrosion resistance of coatings on metallic substrates.



Invisi-Gard hinged security door, Western Sydney, NSW



MULTI-USE SECURITY SCREEN SOLUTIONS

While designed primarily for security, security doors and screens can be used for a variety of other purposes. Be wary of security screen solutions that claim to be multi-use – careful specification and assessment is needed to ensure the solution performs at the required level to achieve its main security objective as well as other intended uses.

FIRE ATTENUATION AND BUSHFIRE ZONES

Fire attenuation screens reduce the level of radiant heat and selecting the wrong security screen for this purpose can add to the fire risk. The screen should be tested in accordance with Appendix B7 of *AS 1530.4-2014 Methods for Fire Tests on Building Materials – Components and Structures*.

For buildings in bushfire prone areas, the solution should meet the requirements of local regulations as well as *AS 3959-2018 Construction of buildings in bushfire-prone areas*.

FALL PREVENTION

Under the *National Construction Code (NCC)*, there are requirements to protect certain openable windows to reduce the risk of young children falling from those windows.¹⁴ Standard flyscreens are not designed to protect a child from falling through the window.¹⁵

If the window is accessible and not restricted, the screen must be tested to withstand the requisite level of force. The relevant testing regime is found in *AS 5203-2016 Protection of openable*

windows/fall prevention – Test sequence and compliance method. Alternatively, the designer may choose to restrict the window, but this will result in reduced ventilation.

ENERGY EFFICIENCY

Under the NCC, a building must have a level of thermal performance to facilitate the efficient use of energy for artificial heating and cooling. According to the YourHome government website, up to 87% of heat gained in a house is through windows and up to 40% of heating energy can be lost through windows,¹⁶ increasing the reliance on mechanical heating and cooling to maintain comfortable indoor temperatures.

Security screen doors and windows can contribute to improved energy efficiency by providing shading. Security screens allow windows and doors to be kept open to increase airflow and regulate indoor temperatures, while still providing an effective barrier against intruders and pests. The semi-transparent construction of mesh also blocks out direct sunlight, reducing the amount of heat gained through the screened portion of the window opening.

The Window Energy Rating Scheme (WERS) is an NCC-compliant rating system that assesses the energy efficiency performance of fenestration products.¹⁷ Energy ratings under this Scheme are third-party certified and can be used to meet regulatory requirements.¹⁸ When selecting a security screen solution, its WERS rating will indicate its energy efficiency performance.

ALSPEC

Established in 1974, Alspec is the market leader in the design and distribution of innovative aluminium systems to the architectural, industrial and home improvement markets. Alspec has invested heavily in research and development to ensure a continual supply of ground-breaking systems, improved products and new technology.

With its own NATA-accredited testing facility in Brisbane, the company's extensive product range is rigorously tested, providing customers with high quality, compliant architectural solutions. Alspec products are supported by skilled staff committed to satisfying customer requirements.

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INVISI-GARD BY ALSPEC

Featuring heavy duty materials and unique patented product architecture, Alspec's Invisi-Gard is a single multi-function security screen that does everything in an easy “one size fits all” solution.

At their core, Invisi-Gard security screens and doors feature high tensile marine grade 316 stainless steel mesh that is corrosion resistant and leads it class in quality, precision and longevity. This class-leading mesh is retained in an aluminium frame using the patented EGP (Extreme Grip Protection) retention system, which has been designed for maximum strength and durability.

Invisi-Gard meets the design, performance and security testing requirements set out by the Australian Standards for security screen doors and windows, AS 5039-2008 and AS 5041-2003. Invisi-Gard easily passes the six security tests under these Standards, including the Dynamic Impact Test, Jemmy Test and

Knife Shear Test and more. Key security features include the EGP retention system that easily withstands dynamic impacts, stainless steel mesh that is extremely difficult to cut, and high quality security hardware and components.

In addition to providing security and peace of mind, Invisi-Gard complies to the relevant Australian Standards for a variety of different applications. This includes:

- Bushfire testing to AS 3959-2018 and AS 1530.8.1-2018;
- Fall Prevention testing to AS 5203-2016; and
- Energy efficiency performance testing under WERS.

Alspec ensures that Invisi-Gard is only installed by Certified Installers to ensure customers get what they pay for – quality, reliability and performance.

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All information provided correct as of July 2020