CRIME PREVENTION PARTNERS

FACT SHEET - UNSW@ADFA Impact Test Results

1. What authority does Standards Australian have?

In the building industry the Building Code of Australia (BCA) is the legislated laws of building and construction. An Australian Standard for a specific product or building material is a recommendation of how to meet the requirements of the BCA. Security Screens are not covered under the BCA.

A private organisation called Standards Australia assists various industries with the development of product, service or system Standards relating to their specific industry. Standards Australia is a non-Government organisation and has no legal authority or jurisdiction to enforce a Standard.

An Australian Standard is a published document setting out specifications and procedures designed to ensure products, services & systems are safe, reliable and consistently perform the way they are intended to. Standards Australia makes sure that the Standard is developed according to particular guidelines and requirements.

2. What is AS5039: 2008 - Security Screen Door and Security Window Grilles?

This is the standard that the Australian security screen industry is based on. It is the specifications and procedures that every manufacturer of security doors and window grilles should have their security doors and window grilles tested to.

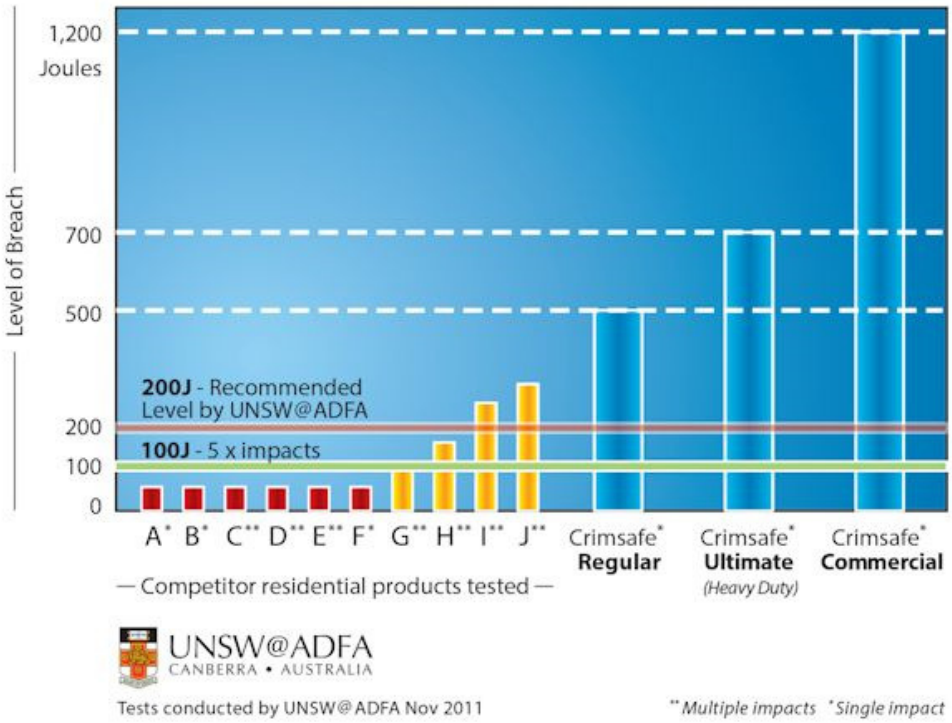
3. What body ensures that manufacturers comply to this standard?

The Australian security industry does not have a national body that enforces the Australian Standard. Manufacturers of security screen systems can test their screens to gain Australian Standard certification, but there is no way of monitoring whether the product manufactured through all of their fabrication outlets, on a day to day basis, meets the Australian Standard.

4. What is the method of testing for Impact resistance for security doors?

In the Australian Standard, AS5041:2003 - Methods of Test, the *Dynamic Impact Test* simulates the effects of human impact against a security screen door or window grille by allowing a standardised weight to swing against the test specimen five times.

The impact used is equivalent to that of a young child running into a glass door, which is about 100 joules of energy. This was established in the Australian Standards for glass, AS1288 and has been adopted by the security industry.



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5. Is the Dynamic Impact Test suitable for the Security Industry?

This question was put to the faculty of the University of NSW, School of Aerospace Civil & Mechanical Engineering at the Australian Defence Force Academy when conducting impact testing on a broad range of stainless steel security screens. The answer was that a suitable minimum impact force that a security screen should be able to resist, would be well above the 100 joule mark. However more testing of "real life" attacks need to be conducted to determine where the standard should be.

6. If the Dynamic Impact Test was increased to 200 joules, how would Crimsafe and other competing screens perform?

The UNSW@ADFA security screen impact testing was conducted on 3 x types of Crimsafe frames and on 9 of the top competing brands of stainless steel security screens. For each brand of product, 2 x screens, 800mm x 800mm, were procured from reputable manufacturers. The first screen of every brand was submitted to the equivalent 5 x impacts of 100 joules, as per the impact level described in AS5041: 2003 Methods of Test. If the first screen failed, the second screen was then used to continue the test.

The results as shown in Figure 1.0, were very concerning for the security industry, as both samples of six major brands of security screen product, failed to pass five impacts at the level described in the Australian Standard of100 joules.

The screens that did pass the 5 x impacts at 100 joules were then submitted to a further 3 x impacts at 50 joule increments, until the screens "failed", which is considered to be when the stainless steel mesh separates from the frame over a length of 150mm. Therefore each screen was tested at 3 x impacts @ 150 joules, 3 x impacts @ 200 joules, 3 x impacts @ 250 joules; until the screens 'failed'.

If the Australian Standard Dynamic Impact Test was raised to an impact level of 200 joules all of the Crimsafe products would easily exceed the new standard and from the products that were tested, only two other brands would meet the increased impact level. The rest of the major brands tested from the security screen industry would not meet this level.

7. What is a "joule"?

A "joule" is the measurement of energy used to perform an action. Every movement we make and action we perform uses energy. One joule is the energy you use when you lift one kilogram about 10 centimetres. That's roughly the same as picking up 1 litre of milk to pour it on your cereal.

8. How many joules could a "real life" attacker kick my security screen with?

In a "real life" attack on a security door the amount of energy that a potential intruder could hit or kick with would depend on their size, their strength, their ability to kick effectively and their motivation. This is a difficult measurement to obtain, however the faculty at the UNSW@ADFA are currently developing a test procedure for this and will be able to provide some very accurate information.

The UNSW@ADFA estimate that repeated impacts of 150 joules could be achieved by a human in an attack to gain entry through a security screen door. However impacts of up to 275 joules were recorded in an initial testing of human bio-mechanical impact testing. Based on preliminary testing Crimsafe believe that the Standard should be 5 impacts of 200 joules.

9. What level did the Crimsafe product perform to?

There were three types of Crimsafe screens submitted to the UNSW@ADFA for testing;

- Crimsafe Residential - normal screw-clamp with screws spaced at 125mm
- Crimsafe Heavy Duty - special screw-clamp with screws spaced at 62.5mm
- Crimsafe Commercial - commercial screw-clamp with two rows of screws spaced at 25mm offset.

Crimsafe Residential passed up to **500 Joules** - 5 x higher than the singular impact level described in AS5041.
Crimsafe Heavy Duty passed up to **700 Joules** - 7 x higher than the singular impact level described in AS5041.
Crimsafe Commercial passed up to **1200 Joules** - 12 x higher than the singular impact level described in AS5041.