

WFAANZ TECHNICAL BULLETIN

Toughened Glass + Window Film

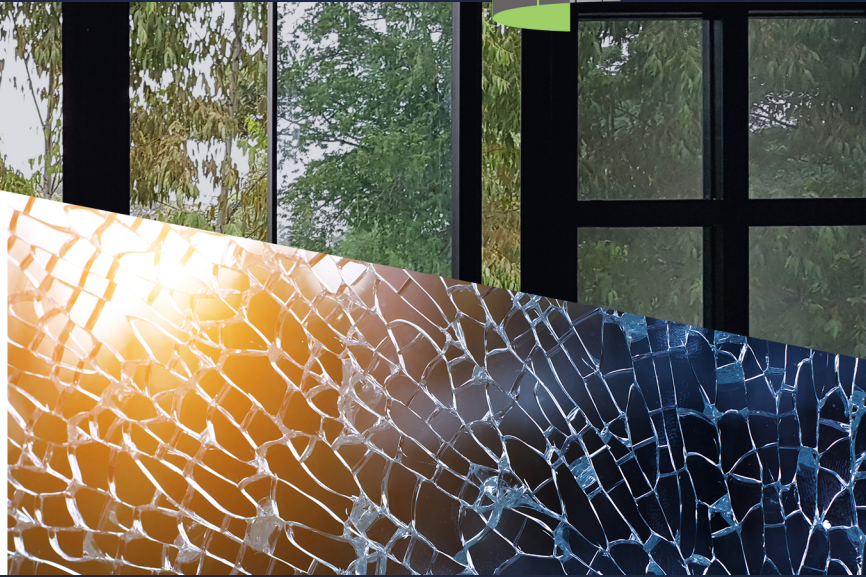


What is toughened glass?

Due to tightening safety regulations, a growing demand for safety glass and an increase in window sizes, toughened glass is becoming more prevalent.

Also known as tempered, safety or break safe glass, toughened glass is about four times stronger than annealed (float) glass, is resilient to temperature change, and is not typically subject to thermal breakage.

As it forms into small cubes when broken, toughened glass meets the safety glass standard of AS 2208, and is commonly specified in locations with an increased risk of human impact and glass breakage.



It can be found in...

- Windows and doors
- High traffic areas
- Balustrades
- Shower screens
- Shopfronts
- Overhead glazing
- Interior walls
- Spandrels
- Structural glass assemblies and facades
- Schools, daycare centres, hospitals, etc.



Hard and soft side

During the manufacture process, the glass enters a toughening furnace on rollers. The glass surface not in contact with the rollers is the **hard** side (or smooth side). The surface that is touching the rollers is the **soft** side (or rough side).

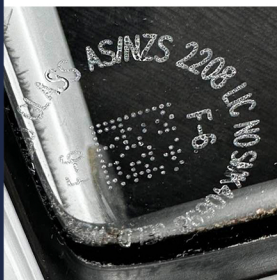
The soft side often has 'pickup' or 'pitting', a deposit of tiny glass particles that come from the rollers and fuse to the underside of the glass - that's why it can be rough to the touch.

Scratching can occur during cleaning or film installation when these particles dislodge and are scraped along the glass. The chance of scratching increases if a blade is used.

Identifying the hard and soft side is crucial when installing window film as care must be taken when working on the soft side.

Safety stamp

Toughened glass should have a stamp in one corner that marks compliance with the relevant safety glazing standard.



Called a 'bug' or safety label, the stamp is usually found on the **hard** (smooth) side of the glass. But in some cases, the stamp may be etched into the **soft** (rough) side; and sometimes there is no safety stamp at all. That's why film installers need to determine the hard and soft side of the glass for themselves prior to installation.

Window film installation

While installing window film on the soft side of toughened glass is possible, hard side installations are preferable to help prevent scratching. If the hard side of the glass faces the outside, an external application can be considered.

As well as identifying the hard surface, take photos of and point out to the client existing scratches/marks during the quotation stage.

If installing on the soft surface, prior consent from the client should be gained after explaining the potential of scratching and visibility of pitting. NB: the more reflective the film, the more noticeable the pitting may be.

For information regarding other considerations such as nickel sulphide inclusion and anchoring window film onto toughened glass, please contact WFAANZ.

Keep in mind

Window fabricators should manufacture toughened glass window units with the soft side facing indoors. As the outside surface has greater risk of contamination, an outwards facing hard side reduces the chance of the pickup dislodging.

It is common, however, for toughened glass windows to be manufactured or installed incorrectly, or for the same site to have glass facing different ways, i.e. some with the soft surface facing inside and others facing outside.

Use a soft cloth only when cleaning the soft side of toughened glass. Avoid cleaners with hydrofluoric or phosphoric acid, and do not clean the glass when it is hot.

Identification

There are a variety of ways to identify toughened glass, including with a toughened glass indicator.



Information and training on identifying glass is provided through the WFAANZ Architectural Window Film Certification program.

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