



CSI Technical Guidance

Bullet Resistant Panels and Elements Standards Testing and Certification Guidance

Using AS/NZS 2343 and International Ballistic Standards in Australia and New Zealand



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1. Executive Summary

AS/NZS 2343:1997 is the established Australian and New Zealand standard for classifying bullet-resistant transparent, translucent and opaque panels and associated elements. It remains technically relevant to regional product assessment, but it is a withdrawn standard and is not directly called up as a primary referenced document by the Australian National Construction Code or by a New Zealand Building Code Acceptable Solution or Verification Method.

A withdrawn standard is not automatically unusable. It may still form part of a contract specification, product-certification scheme or project-specific evidence package where its continued suitability is demonstrated. The edition, threat class, projectile, velocity, shot pattern, sample configuration, witness-medium criterion and environmental conditioning must be stated.

EN 356 is not an alternative ballistic standard. It assesses security glazing resistance to hard-body impact and manual attack. Ballistic alternatives include ISO 16935, EN 1063 with EN 1522 and EN 1523 for complete opening assemblies, UL 752, ASTM F1233 and NIJ 0108.01. Their classifications are not directly interchangeable with AS/NZS 2343 because the ammunition, projectile construction, velocities, shot patterns, sample arrangements and failure criteria differ.

CSI recommends threat-based assessment rather than class-name conversion. Certification should cover the precise construction tested, permitted product family, manufacturing controls, marking, installation conditions and ongoing surveillance. Where a product forms part of a building, ballistic performance does not replace the applicable structural, glazing safety, fire, durability, weatherproofing or energy-efficiency requirements.

2. Purpose and Scope

This document provides guidance for selecting and applying ballistic-resistance standards to panels, glazing and building elements in Australia and New Zealand. It is intended to support specifications, evaluation plans, testing programmes, PAS-Mark work and CodeMark-related evidence assessment where ballistic performance is a claimed product characteristic.

This document explains

- the status and technical role of AS/NZS 2343:1997;
- the distinction between manual-attack testing under EN 356 and ballistic testing;
- the scope of principal international ballistic standards;
- why classifications must not be converted by name or nominal energy alone;
- the evidence required for panels, frames, fixings and complete assemblies;
- how alternative standards may be assessed for certification and building-code purposes.

This guidance does not select a threat level for a project. Threat selection requires a documented security-risk assessment considering credible weapons, ammunition, stand-off distance, number and location of impacts, protected occupants, spall tolerance, attack duration and consequences of failure.

3. Key Terms

Term	Meaning in this guidance
Ballistic resistance	Resistance to penetration and hazardous rear-face effects from specified firearm projectiles under defined test conditions.
Bullet-resistant panel	A transparent, translucent or opaque protective panel intended to resist a defined ballistic threat.
Bullet-resistant element	A complete component or assembly such as a window, door, frame, mullion, louvre, pass-through device or joint incorporating ballistic protection.

Term	Meaning in this guidance
No splinter or no spall	A classification or acceptance condition limiting hazardous material ejected from the protected face. The precise test criterion depends on the applicable standard.
Threat class	A defined combination of weapon or barrel, cartridge, projectile, mass, velocity, range, shot count and shot pattern.
Alternative standard	A standard proposed in place of another standard. Acceptance requires an evidence-based comparison of scope, test severity, failure criteria and intended use.
Complete assembly	The panel together with its framing, joints, fasteners, hardware, openings and interfaces, tested or otherwise evaluated for the claimed configuration.

4. Regulatory and Code Context

4.1 Australia

The National Construction Code (NCC) 2025 is performance-based and references specified Standards and other documents through its Deemed-to-Satisfy Provisions, Verification Methods and Specifications. The applicable NCC edition, amendments and transitional arrangements must be confirmed for the relevant State or Territory.

AS/NZS 2343:1997 is not identified as a primary referenced document in the NCC 2025 referenced-document schedule. Compliance with AS/NZS 2343:1997 is therefore not, by itself, a Deemed-to-Satisfy requirement of the NCC. Bullet resistance will ordinarily arise as an additional project, contractual, security or procurement requirement. Evidence obtained under AS/NZS 2343:1997 may also form part of the supporting evidence for a project-specific Performance Solution where relevant NCC Performance Requirements have been identified.

AS 1288 does not specify ballistic-resistance classifications or test methods and does not reference AS/NZS 2343. However, where a transparent bullet-resistant panel is installed as glazing in a building, the applicable glass-selection, structural, human-impact and installation requirements of AS 1288 may apply independently of its ballistic classification.

A ballistic classification does not establish compliance with other applicable NCC requirements. Depending on the product, building classification, location and intended use, separate evidence may be required for matters including structural adequacy, glazing selection and installation under AS 1288, windows and external glazed doors under AS 2047, human-impact safety, fire resistance, façade weatherproofing, accessibility and energy efficiency.

4.2 New Zealand

The New Zealand Building Code also does not prescribe a specific bullet-resistance standard through its commonly applicable Acceptable Solutions or Verification Methods. Ballistic protection is normally a project or client security requirement. Where the work affects Building Code compliance, the consent applicant must separately demonstrate compliance with the relevant clauses, which may include B1 Structure, B2 Durability, C Protection from Fire, E2 External Moisture, F2 Hazardous Building Materials and F4 Safety from Falling.

For glazing safety, NZS 4223.3 and AS/NZS 2208 may remain relevant independently of the ballistic test. A ballistic-glazing report does not, by itself, establish compliance with human-impact safety or the complete building installation.

5. AS/NZS 2343:1997

AS/NZS 2343:1997 applies to transparent, opaque and translucent bullet-resistant panels and to associated components including frames, mullions, voice-transfer louvres and pass-through devices. It classifies

performance against controlled firearm attack and includes test, reporting, marking, weathering and conditioning provisions.

Class family	Representative threat	Application note
G classes	Handgun threats, including 9 mm, .357 Magnum and .44 Magnum classes.	Specify the exact AS/NZS class and edition; do not use a generic handgun label.
R classes	Rifle threats, including 5.56 mm and 7.62 mm classes.	Projectile construction is critical; ball and armour-piercing threats are not equivalent.
S classes	Shotgun threats using specified shot or slug arrangements.	Shot load, choke, range and strike pattern affect the result.
Special class	A purchaser- or manufacturer-defined threat outside the listed classes.	The complete ammunition and test conditions must be recorded in the specification and report.

The test result applies to the construction and configuration represented by the tested samples. Smaller panels, larger panels, edge details, unsupported spans, altered laminate make-ups, different frame bites, changed fasteners or different joints can change performance. Product-family extension requires a documented technical basis and, where uncertainty remains, additional testing.

AS/NZS 2343 requires attention to rear-face effects through its witness-card criterion. A report should not describe a specimen as passing where the projectile was stopped but the witness card was perforated. For transparent panels, environmental conditioning and the exposed side are also important because many laminated constructions are directional and temperature sensitive.

Because AS/NZS 2343:1997 is withdrawn, specifications and certificates should state that edition explicitly and explain why it remains suitable for the intended threat and market. The status must not be concealed, and current alternatives should be considered during each certification review.

6. EN 356 Is Not a Ballistic Alternative

EN 356 classifies security glazing against manual attack. Its P1A to P5A classes use repeated impact from a falling steel ball. Its P6B to P8B classes use repeated mechanical attack with an axe. No firearm projectile is used.

Standard	Threat simulated	Typical classes	Ballistic evidence
EN 356	Thrown-object and manual attack	P1A-P5A and P6B-P8B	No
EN 1063	Firearm attack on security glazing	BR classes and shotgun classes	Yes, for the glazing product
EN 1522 and EN 1523	Firearm attack on windows, doors, shutters and blinds	FB classes and shotgun class	Yes, for the complete opening product tested

An EN 356 classification may be specified in addition to ballistic resistance where forced-entry delay is required after impact. It must not be used to claim, infer or certify bullet resistance.

7. International Ballistic Standards

Standard	Primary scope	Principal use	Important limitation
ISO 16935:2007	Bullet-resistant security glazing for building use	International glazing classification by specified weapon and ammunition	Assumes adequate fixing and does not test the surrounding structure as a complete assembly.
EN 1063	Security glazing resistant to bullet attack	European BR and shotgun classification, including splinter or no-splinter designation	Glazing product test; combine with assembly testing where frames and interfaces are claimed.
EN 1522 and EN 1523	Windows, doors, shutters and blinds	European requirements, classification and test method for complete opening products	Does not automatically establish the wall-to-product interface unless included in the tested configuration.
UL 752	Bullet-resisting equipment, materials, fixtures and assemblies	US building components, barriers, glazing, doors and transaction equipment	The edition and performance designation must be stated; 12th-edition designations differ from earlier Level 1-10 ratings.
ASTM F1233	Security glazing materials and systems	Ballistic, forced-entry and containment evaluation	Specify the applicable threat, class and acceptance criteria; it is broader than a single ballistic classification.
NIJ 0108.01	Ballistic-resistant protective materials	Materials for fixed structures, shields and vehicles	Published in 1985 and mainly a materials standard; assembly interfaces require separate evidence.
VPAM guidelines	Ballistic materials, constructions and products	Specialist European ballistic assessment	Use the applicable current product-specific guideline with the general testing basis.

ISO 16935:2007 remains current in the ISO catalogue and includes test procedures, classification, marking, extreme-temperature testing and installation considerations. UL 752 has undergone substantial revision; the 12th edition replaced the earlier Level 1-10 system with threat-specific handgun, rifle and shotgun performance designations. Reports and certificates must therefore identify the edition used.

8. Equivalence and Substitution Assessment

There is no reliable one-line conversion between AS/NZS 2343 classes and classifications under ISO, EN, UL, ASTM or NIJ documents. A proposed alternative should be assessed against the actual threat and test method, not merely calibre or approximate muzzle energy.

Comparison field	Required assessment
Projectile	Calibre, cartridge, bullet or shot construction, core material, jacket, geometry and nominal mass.
Impact conditions	Required striking velocity and tolerance, measurement location, range, angle and environmental temperature.

Comparison field	Required assessment
Shot sequence	Number of shots, spacing, pattern, edge distance and whether multiple strikes damage an already weakened zone.
Specimen	Dimensions, thickness, lay-up, orientation, conditioning, exposed face, edge support, frame bite and number of samples.
Failure criteria	Complete penetration, witness-medium perforation, rear-face fragments, splinter or spall designation and permitted openings.
Assembly coverage	Whether the panel alone, frame, joints, locks, fasteners, mullions, service openings and substrate interface were tested.
Quality controls	Product identification, traceability, production tolerances, change control, marking and ongoing verification.

An alternative can be accepted only where the evidence demonstrates equivalent or greater protection for the specified credible threat and intended installation. If differences cannot be resolved analytically, representative testing to the nominated requirement is necessary. A supplier declaration or marketing cross-reference is not sufficient.

9. Complete Assembly and Installation Requirements

The protective barrier is only as strong as its weakest path. Ballistic glazing installed in an ordinary frame, an opaque panel with unprotected joints, or a compliant door leaf with vulnerable hardware does not create a compliant assembly.

The evaluation should address

- panel make-up, thickness, dimensions, orientation and protected face;
- frame material, profile, reinforcement and minimum edge engagement;
- mullions, transoms, corner joints and panel-to-panel interfaces;
- fastener type, spacing, substrate, embedment and edge distances;
- doors, hinges, locks, closers, glazing beads and opening lights;
- voice ports, pass-through trays, deal slots, cable penetrations and other openings;
- wall, floor and ceiling continuity around the protected zone;
- installation instructions, tolerances, inspection and identification of the attack side.

Where the selected test standard covers only a material or glazing sheet, the certification scope should be limited accordingly unless additional evidence supports the frame and installation. Certificates must not imply complete-system performance from a panel-only report.

10. Certification and Evidence Requirements

A CSi evaluation plan should define the claimed product, standard and edition, threat class, variants, sampling, test programme, laboratory competence, factory-production controls, installation evidence, decision criteria and surveillance programme before testing begins.

Evidence	Minimum expectation
Risk and claim definition	Intended use, credible ballistic threat, protected side, class, splinter/spall requirement and limitations.

Evidence	Minimum expectation
Technical description	Drawings, bill of materials, laminate schedule, frame profiles, hardware, joints, tolerances and installation details.
Test reports	Reports from a competent laboratory identifying the standard edition, apparatus, ammunition, velocities, impacts, samples, conditioning and pass/fail observations.
Sample control	Independent or controlled sample selection linked to normal production and traceable manufacturing records.
Factory controls	Incoming material control, process parameters, in-process checks, finished-product inspection, traceability, nonconformity and corrective action.
Change control	Prior assessment of changes to materials, suppliers, dimensions, lay-up, frame, hardware, processing and installation.
Marking and documents	Product identity, class, standard edition, orientation where applicable, certificate reference, limitations and installation instructions.
Surveillance	Periodic review of production, records, marking, complaints, changes and verification testing appropriate to the product risk.

For CodeMark Australia or CodeMark New Zealand work, ballistic resistance may be included only where it is relevant to the product claim and supported by accepted evidence. The certificate must also identify the applicable building-code provisions and conditions of use. CodeMark status must not be implied merely because a ballistic test report exists.

11. Specification Guidance

A specification should state the required outcome in testable terms. The following model is illustrative and must be completed for the project:

Specify the complete [panel/glazing/window/door/barrier] assembly as tested and classified to [standard and edition], class [designation], for the defined [handgun/rifle/shotgun] threat. Require [splinter/no-splinter or rear-face witness criterion], identify the attack face, and include frames, mullions, joints, hardware, penetrations, fixings and substrate interfaces within the evidence scope. Submit accredited or otherwise accepted laboratory reports, drawings matching the tested construction, installation instructions, product identification and evidence of controlled production. No substitution or construction change is permitted without documented technical assessment and approval.

Specification cautions

- Do not specify only 'bulletproof' or 'ballistic glass'.
- Do not cite EN 356 as the ballistic test standard.
- Do not state only a class without the standard and edition.
- Do not accept a panel-only report for a claimed complete window, door or wall system.
- Do not convert classes without a documented comparison of the actual threat and test method.
- Do not omit the protected-side fragment criterion or installation orientation.

12. CSI Position Statement

CSI recognises AS/NZS 2343:1997 as an established regional ballistic test and classification document that may continue to support certification where its withdrawn status is disclosed and its suitability for the intended threat is

demonstrated. CSI also recognises that current international standards may provide appropriate or more complete evidence for particular products and markets.

CSI will not treat EN 356 as evidence of bullet resistance and will not accept nominal cross-classification tables as a substitute for technical assessment. Each certification claim must identify the precise standard, edition, class, product construction and scope of assembly assessed.

Where an international standard is proposed in place of AS/NZS 2343, CSI should document the threat comparison, test-method differences, acceptance criteria, complete-assembly coverage and any supplementary evidence needed. Certification remains limited to the verified product family and stated conditions of use.

13. References and Further Reading

Reference	Title or source	Relevance
AS/NZS 2343:1997	Bullet-resistant panels and elements	Australian and New Zealand classification, testing, conditioning, reporting and marking basis.
ISO 16935:2007 and Cor 1:2008	Glass in building - Bullet-resistant security glazing - Test and classification	Current international glazing test and classification document.
EN 1063	Glass in building - Security glazing - Testing and classification of resistance against bullet attack	European bullet-resistant glazing classification.
EN 1522 and EN 1523	Windows, doors, shutters and blinds - Bullet resistance	European requirements, classification and testing for opening assemblies.
EN 356	Glass in building - Security glazing - Testing and classification of resistance against manual attack	Manual-attack standard; not a ballistic test.
UL 752	Bullet-Resisting Equipment	US threat-specific equipment and assembly classifications.
ASTM F1233	Standard Test Method for Security Glazing Materials and Systems	Ballistic and forced-entry evaluation of security glazing systems.
NIJ 0108.01	Ballistic Resistant Protective Materials	US ballistic materials test and classification document.
NCC 2022 Part A4	Referenced documents	Explains the status and application of NCC referenced documents.
NZ Building Code F2/AS1	Hazardous building materials	Glazing human-impact safety compliance pathway, separate from ballistic resistance.

Current-source links: ISO standards catalogue, <https://www.iso.org/ics/81.040.20/x/>; UK National Protective Security Authority bullet-resistant glass guidance, <https://www.npsa.gov.uk/building-protection/windows-glazed-facades/bullet-resistant-glass>; UL 752 information, <https://www.ul.com/news/what-does-it-take-stop-speeding-bullet>; ASTM F1233 catalogue, <https://www.astm.org/f1233-21.html>; NIJ 0108.01, <https://nij.ojp.gov/library/publications/ballistic-resistant-protective-materials-nij-standard-010801>.

Note: Standards are controlled documents. Users must obtain authorised copies, confirm the current edition and status, and verify applicable regulatory and scheme requirements before relying on them.

Appendix A Ballistic Product Assessment Checklist

No.	Review question	Evidence or comments
1	Is the credible ballistic threat documented by weapon, ammunition, projectile and velocity?	
2	Does the specification identify the standard, edition and exact class?	
3	Is the protected-side splinter, spall or witness-medium criterion stated?	
4	Does the test report describe the actual product construction and orientation?	
5	Are sample selection, conditioning, dimensions and shot pattern compliant?	
6	Is the laboratory competence and report authenticity verified?	
7	Does the evidence cover the claimed frame, joints, hardware, openings and fixings?	
8	Are product-family extensions technically justified and conservative?	
9	Are structural, human-impact, fire, durability and weatherproofing requirements separately addressed?	
10	Are manufacturing controls and critical tolerances documented?	
11	Are marking, attack-face orientation and installation instructions controlled?	
12	Is every proposed change subject to prior technical assessment?	
13	Does the certificate scope match the evidence without implying complete-system performance from panel-only testing?	
14	Has the withdrawn or superseded status of any standard been disclosed and assessed?	
15	Has independent technical review and certification decision-making been completed?	