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Part 2

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*mounting frames
for testing sheet security materials.*

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BULLET-RESISTANT PANELS FOR INTERIOR USE Part 2—OPAQUE PANELS



STANDARDS ASSOCIATION OF AUSTRALIA

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Aluminium Development Council
Australian Bankers Association
Australian Bank Employees Union
Confederation of Australian Industry
Department of Defence
Federated Glass Merchants Association
Plastics Institute of Australia Incorporated
Police Department, N.S.W.
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AUSTRALIAN STANDARD

**BULLET-RESISTANT PANELS FOR
INTERIOR USE**

**Part 2
OPAQUE PANELS**

AS 2343, Part 2—1984

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PREFACE

This standard was prepared by the Association's Committee on Bullet-resistant Glazing Panels following a request from the Australian Bank Employees Union.

Requirements and test methods for opaque bullet-resistant panels are specified such that the opaque panels will provide equivalent protection against the effects of ballistic attack involving the use of firearms to that provided by glazing panels specified in AS 2343, Part 1.

Both parts of the standard classify bullet-resistant panels according to their performance in preventing penetration by projectiles discharged from firearms under controlled conditions.

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STANDARDS ASSOCIATION OF AUSTRALIA**Australian Standard****for****BULLET-RESISTANT PANELS FOR INTERIOR USE****PART 2—OPAQUE PANELS****FOREWORD**

Opaque bullet-resistant panels can be fitted to a wide variety of counters, screens, partitions, etc; consequently, it is not possible to specify instructions for installation in this standard. Nevertheless, it should be recognized that the degree of protection depends as much upon the design, fixing and maintenance of the counter, screen or partition as it does upon the bullet-resistant panel itself. Accordingly, the frames or other areas surrounding the bullet-resistant panel should provide as high a level of protection as the panel, and the frame should also provide sufficient overlap to prevent dislodgement of the panel during attack.

Where the bullet-resistant panel is not installed by the manufacturer, it is essential that adequate instructions for installation are provided by the manufacturer. The bullet-resistant panel must be correctly installed according to its design characteristics. For example, installation may necessitate the provision of air gaps of specific distances between the various sheets or panels. In some cases, it may be necessary to orientate the bullet-resistant panel in relation to the expected direction of attack.

S P E C I F I C A T I O N

1 SCOPE. This standard specifies requirements for opaque bullet-resistant panels according to their performance in preventing penetration by projectiles discharged from firearms under controlled conditions.

This standard does not include a requirement for the retention of bullet-resistant properties for a stated period of time nor requirements for certain other aspects such as the structural strength and durability of the panels.

2 APPLICATION. This standard applies to opaque bullet-resistant panels for use in interior architectural applications at ambient temperature, i.e. $20 \pm 10^\circ\text{C}$.

NOTE: Opaque bullet-resistant panels complying with the requirements of this standard may also be suitable for use in interior architectural applications at other than ambient temperature.

3 DEFINITION. For the purpose of this standard, the following definition applies:

Opaque bullet-resistant panel—a complete bullet-resistant unit which is classified (see Clause 4) according to its resistance to ballistic attack by firearms.

4 CLASSIFICATION. Opaque bullet-resistant panels shall be classified according to their resistance to ballistic attack (see Table A1) from firearms as follows:

- (a) *Resistance to hand guns and rifles.*
- (i) Class G0—resistant to attack by a 9 mm military parabellum hand gun.
 - (ii) Class G1—resistant to attack by a 357 magnum hand gun.
 - (iii) Class G2—resistant to attack by a 44 magnum hand gun.
 - (iv) Class R1—resistant to attack by a 5.56 mm rifle.
 - (v) Class R2—resistant to attack by a 7.62 mm rifle.

NOTES:

1. A panel complying with the requirements of one of the classes of category G will comply with the requirements of other lower numbered classes of category G; e.g. a panel complying with the requirements of Class G2 also complies with the requirements of Class G1 and Class G0.
2. A panel complying with the requirements of either Class R1 or Class R2 will also comply with the requirements of Class G0, Class G1 and Class G2. A panel complying with the requirements of Class R2 will not necessarily comply with the requirements of Class R1.

(b) *Resistance to shotguns.*

- (i) Class S0—resistant to attack by a 12 gauge shotgun (full choke) firing shot.
- (ii) Class S1—resistant to attack by a 12 gauge shotgun (full choke) firing a single slug.

NOTES:

1. A panel complying with the requirements of Class S1 will also comply with the requirements of Class S0.
2. A panel complying with the requirements of Class S0 or Class S1 will not necessarily comply with the requirements of one or more classes of either category G or R for hand guns and rifles.

5 CONSTRUCTION. Opaque bullet-resistant panels may be made from any number of layers of material of any kind.

NOTE: The type approval tests are carried out on specimens as supplied by the manufacturer but it is appreciated that a surface coating may be applied to the material after installation, and as this could affect the bullet resistance, the advice of the manufacturer should be obtained.

6 PERFORMANCE. When an opaque bullet-resistant panel is tested for resistance to attack in accordance with Appendix A, the projectile shall not pass through the panel nor shall any fragments from the panel perforate the witness card.

7 MARKING.

7.1 General requirements. Opaque bullet-resistant panels shall be clearly marked by the appropriate method (see Clause 7.2) with the following information according to the material from which the panel is made:

- (a) *Non-metal panels.* Non-metal panels shall be manufactured to size and each panel shall carry the following information:
- (i) The manufacturer's name or trademark.
 - (ii) The words 'bullet resistant'.
 - (iii) The classification of the opaque bullet-resistant panel (see Clause 4). Where a panel complies with the requirements of more than one class, it shall be designated by the appropriate letters, e.g. S1/R2.
 - (iv) The words 'public side' on the side of the bullet-resistant panel designed to face the direction of attack.
 - (v) The date of manufacture (to the nearest 3 months).
- (b) *Metal panels.* Metal panels shall be supplied in sheets from which individual panels may be cut. Each sheet shall be marked in such a way that any 500 mm × 500 mm panel cut from the sheet shall contain the following information:
- (i) The manufacturer's name or trademark.
 - (ii) The words 'bullet resistant'.
 - (iii) The manufacturer's product identification.
 - (iv) The manufacturer's batch identification.

In addition each sheet shall bear a label containing the following information:

- A. The classification of the opaque bullet-resistant panel (see Clause 4). Where a panel complies with the requirements of more than one class, it shall be designated by the appropriate letters, e.g. S1/R2. Where a panel is made from more than one layer of material, the correct configuration required to achieve the designated classification shall be indicated.
- B. A note as follows:

CAUTION

The bullet-resistant properties of this panel are dependent on correct installation. Refer to the manufacturer's specifications prior to installing this panel.

7.2 Methods of marking. The marking shall be either—

- (a) of a permanent nature and positioned so that the classification marking in accordance with Clause