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Australian Standard 2424—1981

PLASTICS BUILDING SHEETS—GENERAL INSTALLATION REQUIREMENTS AND DESIGN OF ROOFING SYSTEMS

STANDARDS ASSOCIATION OF AUSTRALIA
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THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Australian Institute of Building Surveyors

CSIRO, Division of Building Research

Department of Housing and Construction

Experimental Building Station

Plastics Institute of Australia Inc.

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PLASTICS BUILDING SHEETS—GENERAL INSTALLATION REQUIREMENTS AND DESIGN OF ROOFING SYSTEMS

AS 2424—1981

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PREFACE

This standard was prepared by the Association's Committee on Plastics Building Sheets, under the direction of the Plastics Standards Board.

Plastics building sheets are installed using the normal procedures for other types of building sheets but with certain modifications to fixing techniques because of the inherent properties of the material. The purpose of this standard is to reinforce general safety rules in relation to sheet installation and to highlight the differences in fixing techniques required for plastics sheets as compared with those used for sheets of other material.

This standard may require reference to the following standards:

AS 1170	SAA Loading Code Part 2—Wind Forces
AS 1250	SAA Steel Structures Code
AS 1475	SAA Blockwork Code
AS 1480	SAA Concrete Structures Code
AS 1481	SAA Prestressed Concrete Code
AS 1538	SAA Cold-formed Steel Structures Code
AS 1562	Design and Installation of Metal Roofing
AS 1657	SAA Code for Fixed Platforms, Walkways, Stairways and Ladders
AS 1684	SAA Timber Framing Code
AS 1720	SAA Timber Engineering Code
AS 1819	Corespun Cotton/Polyester Duck
AS 2312	Guide to the Protection of Iron and Steel Against Exterior Atmospheric Corrosion
AS 2376	Plastics Building sheets Part 1—Extruded PVC Part 2—Glass Fibre Reinforced Polyester (GRP)

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
PLASTICS BUILDING SHEETS—GENERAL INSTALLATION REQUIREMENTS AND DESIGN OF ROOFING SYSTEMS

SECTION 1. SCOPE, APPLICATION AND MATERIAL REQUIREMENTS

1.1 SCOPE. This standard sets out procedures for the installation of plastics building sheets in walls and roofs and for the design of plastics roofing systems.

NOTES:

1. The sheets do not contribute to the structural and/or load-bearing capacity of the structure and due allowance should be made to the surrounding structure to compensate for the opening areas. For applications where structural design requirements must be satisfied, reference should be made to the design and testing provisions of AS 1562 for roofing without transverse joints.
2. For use of the sheets in abnormal environmental conditions, the advice of the manufacturer should be sought.

1.2 APPLICATION. This standard is primarily intended to apply to the use of plastics building sheets complying with AS 2376, Parts 1 and 2.

1.3 MATERIALS. Plastics building sheets installed in accordance with this standard shall comply with the relevant Australian standard specified in Clause 1.2.

1.4 IDENTIFICATION. Plastics building sheets used in conjunction with this standard shall be identified and marked in the manner specified in the relevant Australian standard listed in Clause 1.2.

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SECTION 2. GENERAL REQUIREMENTS

2.1 SCOPE OF SECTION. This Section sets out requirements for the handling, transport, storage and safety precautions in the use of plastics building sheets.

2.2 TRANSPORT, HANDLING AND STORAGE. Plastics building sheets shall be transported and handled in a manner which prevents damage or disfigurement. The maximum length of sheets to be handled shall not exceed 9100 mm.

Sheets shall be protected from damage at all times and shall be stacked securely against possible movement by wind.

Sheets shall be stacked on a firm base to avoid damage or distortion, and shall be kept out of direct sunlight either by locating the stack in a shaded area or by covering the stack. The height of such stacks shall not exceed 750 mm.

2.3 SAFETY PRECAUTIONS.

2.3.1 General Precautions. No person other than workmen authorized by the contractor shall be permitted access to any area over which sheeting is being installed except as required for supervision and inspection.

Local statutory regulations shall be observed.

NOTE: Special care should be exercised when long length sheeting is being handled particularly in windy conditions. Should work be interrupted for any reason, all loose sheeting and/or incomplete sections should be adequately secured against possible movement by wind.

2.3.2 Fire Precautions. Plastics materials are combustible and shall be stored and handled in such a manner as would prevent their coming into contact with sources of heat likely to cause combustion.

NOTE: Plastics building sheets used at low level can become involved in fire from debris ignited near sheeting either inside or immediately outside the building. Care should be exercised to keep combustible debris away from the sheets.

The use of plastics building sheets as spaced roof-lights with non-combustible cladding is not considered to add significantly to the likely spread of fire in the contents of a building as the materials do not give rise to flaming droplets as they burn. UPVC roof-lights will soften and fall out leaving a clear area for venting when flames from a spreading fire are approaching the ceiling. Slowly burning fires may not induce sufficiently high temperatures at ceiling level to cause satisfactory venting before smoke logging occurs. GRP roof-lights cannot be expected to act as smoke vents until burned away, at which stage the fire inside the building may be well developed.

2.3.3 Safety Mesh.

2.3.3.1 *Provision of safety mesh.* Safety mesh shall be used in roof construction, subject to local statutory regulations, except where one or more of the following conditions prevail:

(a) The roof makes an angle to the horizontal of 50 degrees or more.

(b) The roof is that of a private dwelling or outbuilding.

(c) There is a substantial and closely boarded floor or like structure below the roof at a vertical distance of not more than 2.5 m measured from the highest point of the roof.

(d) There is a raised single arch profile of overall height not less than 100 mm from the base support line and both female side lapping ribs are fixed over the supporting male underlapping ribs on either side for the entire length of the sheet. A further stipulation is that the resultant effective cover width shall be not greater than 450 mm.

(e) The roof sheet has an effective cover width not greater than 300 mm, and a matching metal sheet is located on either side to support the plastics sheet throughout its entire length.

(f) The rafters supporting the roof sheeting are not more than 300 mm apart.

(g) The roof or a model of the roof passes the resistance to impact test (sandbag test) of Clause 5.3.

2.3.3.2 *Properties of the mesh.* Safety mesh shall be constructed of steel wire having a tensile strength of not less than 450 MPa. The wires forming the mesh shall be strongly secured, one to the other, at each intersection. The mesh shall be equal in spacing and not less in diameter of wire and mass of zinc coating than the meshes set out in Table 2.1.

2.3.3.3 *Position and fixing.*

(a) *Position of mesh.* Where safety mesh is required, it shall be fitted immediately under the plastics roof sheeting so that it rests upon each of the sheeting supports (battens, rafters or the like). The mesh shall completely cover the proposed area of the plastics roof sheeting.

At unsupported edges, the mesh shall extend for a minimum of 600 mm beyond the plastics building sheet.

(b) *Relevant positions of longitudinal and transverse wires.* Wires parallel to the direction of the corrugations of the sheeting (longitudinal wires) shall be in contact with the tops of the immediate supports of the sheeting; wires at right angles to the direction of the corrugations

TABLE 2.1
REQUIREMENTS FOR SAFETY MESH

Diameter of wire in mesh	Spacing of longitudinal wires	Spacing of transverse wires	Mass of zinc coating	Diameter of staple wire	Fastening to side of rafter: length of staple	Fastening to top of rafter: length of staple	Spacing of staples or other fastening
mm	mm	mm	g/m²	mm	mm	mm	mm
3.15	300	300	75	3.5	30	40	300
3.15	150	300	75	3.5	30	40	300

NOTE: Local statutory regulations will govern the choice of the mesh.

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