



DURASHIELD[®]

Quality Industrial Roofing and Cladding



DURASHIELD® - Ultimate Durability

Introduction

DURASHIELD opaque corrugated PVC panel offers a durable, all-round roofing solution, combining excellent resistance to chemicals, fire and impact. It has evolved into the high quality product of today based on the results of almost 50 years of service. DURASHIELD is lightweight and extremely easy to handle and install using conventional tools and requires very little maintenance.

Long Life Service

DURASHIELD is widely used for industrial roofing for over 50 years. This durable PVC sheet withstands harsh chemical environments where conventional roofing quickly becomes corroded or attacked, a quality that makes it ideal for long term use in demanding industrial and coastal applications.

Product and Application Support

Palram's construction application team provides extensive support to customers on various issues, including: product advisory per application, custom specifications, installation practices, product certification, recommended adhesives and sealants, general guidance and more. The team relies on decades of production expertise in many different environments around the globe where Palram products are installed to this date. Other services offered by the team include on-site support, professional seminars, tailor-made installation guides and more.

Main Benefits

- X Resists extreme chemical environments
- X Will not rust or corrode
- X Weather and UV resistant
- X High fire resistance
- X Long life service
- X Ideal for arched roofs & curved walls
- X High impact - resists breakage
- X Easily handled, quickly installed
- X Requires minimum maintenance



Applications

Industry & Chemical Plants

DURASHIELD is ideal for roofing of production halls, warehouses, chemical storages, conveyors, service sheds, maintenance halls etc.



Coastal Structures

DURASHIELD resists the salty atmosphere typical of coastal installations such as harbor sheds and warehouses.



Mines

DURASHIELD withstands minerals of various types, making it ideal for mine sheds, shelters, warehouses etc.



Agriculture & Livestock

DURASHIELD withstands extreme weather conditions and the gasses which are common in livestock environments.



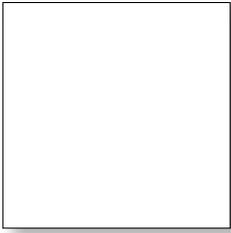
Cladding

DURASHIELD Wall cladding will help create a more hygienic and corrosion-free environment.



Colors

DURASHIELD is available in the following opaque colors:



White



Beige

Color application: white color is recommended for roofs; for walls - white or beige are recommended.

Profiles*

Property	Industrial Rib	Industrial Wave	Wide Greca
Drawing			
Standard length**	7.2 m	7.2 m	7.2 m
Overall Width	1063 mm	1070 mm	1190 mm
Cover Width	1000 mm	963 mm	1064 mm
Thickness	2.0 mm	2.0 mm	1.3 mm
Profile Height	40 mm	27 mm	18 mm
Min. Curving Radius	16.0 m	6.0 m	4.0 m
Max. Overhang	100 mm	100 mm	50 mm
Max. End Spans	1200 mm***	975 mm	600 mm
Max. Mid Spans	1600 mm***	1300 mm	800 mm

* Table data is based on 125 Kg/m² load

**Special length up to 9.6m is available upon minimum order of 1000sqm.

***Spans based on AS 4040.4-1996 Sand Bag impact test

Flammability

DURASHIELD was tested to both AS1530-3 and AS 3837-1998 to comply with local standards.

Test results are shown on the table to the right.

Australian Standard Early Fire Hazard Test Results

Method	Test	Range	Result
AS/NZ 1530 - 3	Ignitability index	0 - 20	8
	Spread of flame index	0 - 10	0
	Heat evolved index	0 - 10	1
	Smoke developed index	0 - 10	7
AS/NZ 3837-1998			Group 3

Weather and UV Resistance

DURASHIELD maintains its physical properties and attractive appearance despite exposure to all types of climatic conditions. These include harmful UV radiation, humidity, rain and snow. DURASHIELD also provides weather protection over a large temperature range, from -20°C to 50°C. DURASHIELD should not be used in the vicinity of chimneys where soot may fall on the sheets.

Typical Physical Properties

Property	Method*	Conditions	Units	Value
Density	D-792		g/cm ³	1.4
Heat deflection temperature (H.D.T)	D-648	Load: 1.82 MP	°C	61 - 67
Service Temperature Range			°C	-20 to +50
Thermal conductivity	C-177		W/m K	0.16
Coefficient of linear thermal expansion	D-696		cm/cm°C	6.3 x 10 ⁻⁵
Impact strength	ISO 6603/1	2 mm sheet	J	45 - 60
Tensile strength at yield	D-638	10 mm/min	MPa	50 - 66
Tensile strength at break	D-638	10 mm/min	MPa	39 - 53
Elongation at yield	D-638	10 mm/min	%	3
Elongation at break	D-638	10 mm/min	%	>80
Tensile modulus of elasticity	D-638	1 mm/min	MPa	2,900
Flexural strength	D-790	1.3 mm/min	MPa	90 - 100
Flexural modulus	D-790	1.3 mm/min	MPa	2,700
Rockwell hardness	D-785		R Scale	105 - 115

* ASTM method except where noted otherwise.

Installation and Maintenance

Cutting

Sheets should be cut using a circular saw with a masonry blade or a fine tooth metal blade at low speeds. In addition, shears or a sharp knife may be used depending on sheeting thickness.

Drilling

Screw holes should be pre-drilled with a 10mm metal drill bit at low speeds to compensate for expansion. (12Mm for sheets longer than 6 metres.) Shavings should be cleared off prior to fixing.

Overlapping

Side laps should be: **Greca 1.0** (54mm) **Industrial Rib: 1.0** Corrugation (54mm) **Industrial Wave: 1.0** Corrugation (107mm). If overlapping is required in the sheet length we recommend a minimum of 200mm for roofs and 100mm for walls. We recommend the use of a compressible foam along the fastener line for roof slopes of less than 10°.

Skylights: SUNTUF polycarbonate sheets are manufactured in each profile to enable light transmitting panels to be easily incorporated for either roof or wall applications.

Fastening

Greca, use 50mm fixings through the crest. Fix top and bottom of sheet every 2nd corrugation and in the center every 3rd corrugation. Greca can also be fitted with 30mm fixings through the valley for wall applications. Industrial rib, use 75mm fixings through every crest and add screws in valleys for the first and last row of fixing. Industrial wave, 65mm fixings through every crest.

Fixings: For highly corrosive areas use stainless steel screws and washers. Care should be taken not to overtighten screws.

Roof fall: A minimum pitch of 5° is recommended (87mm/1000mm)

Caution: In areas where heavy precipitation of soot is expected on the roof the following precautions should be taken:

- use industrial rib, reduce purlin spacing to 1000mm, ensure a minimum pitch of 13°, clean regularly.

Cleaning

- After installation keep sheets free of dust and soot.
- Sheets should be cleaned frequently with a water hose.

Projects - Chemical Storages and Industrial Plants

Project: Gan Shmuel Industries - Israel | DURASHIELD® Type: White 1.5mm, Industrial 100 Profile



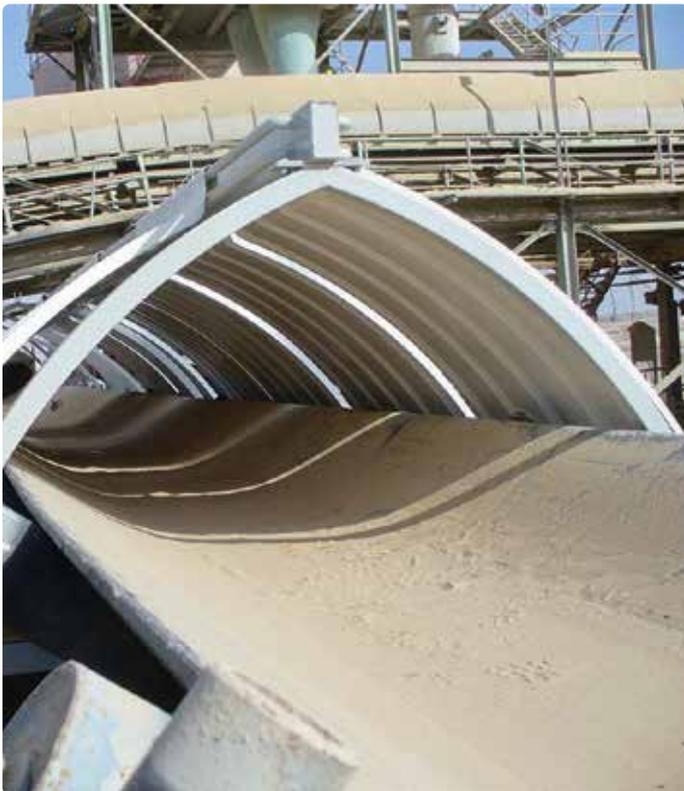
Project: Chemotel Chemical Storage - Israel | DURASHIELD® Type: White 1.5mm, Industrial 100 Profile



Project: Dead Sea Plant Conveyor - Israel | DURASHIELD® Type: White 1.5mm, Iron 76 Profile



Project: Zin Creek Phosphate Plant - Israel | DURASHIELD® Type: White 1.5mm, Custom Profile

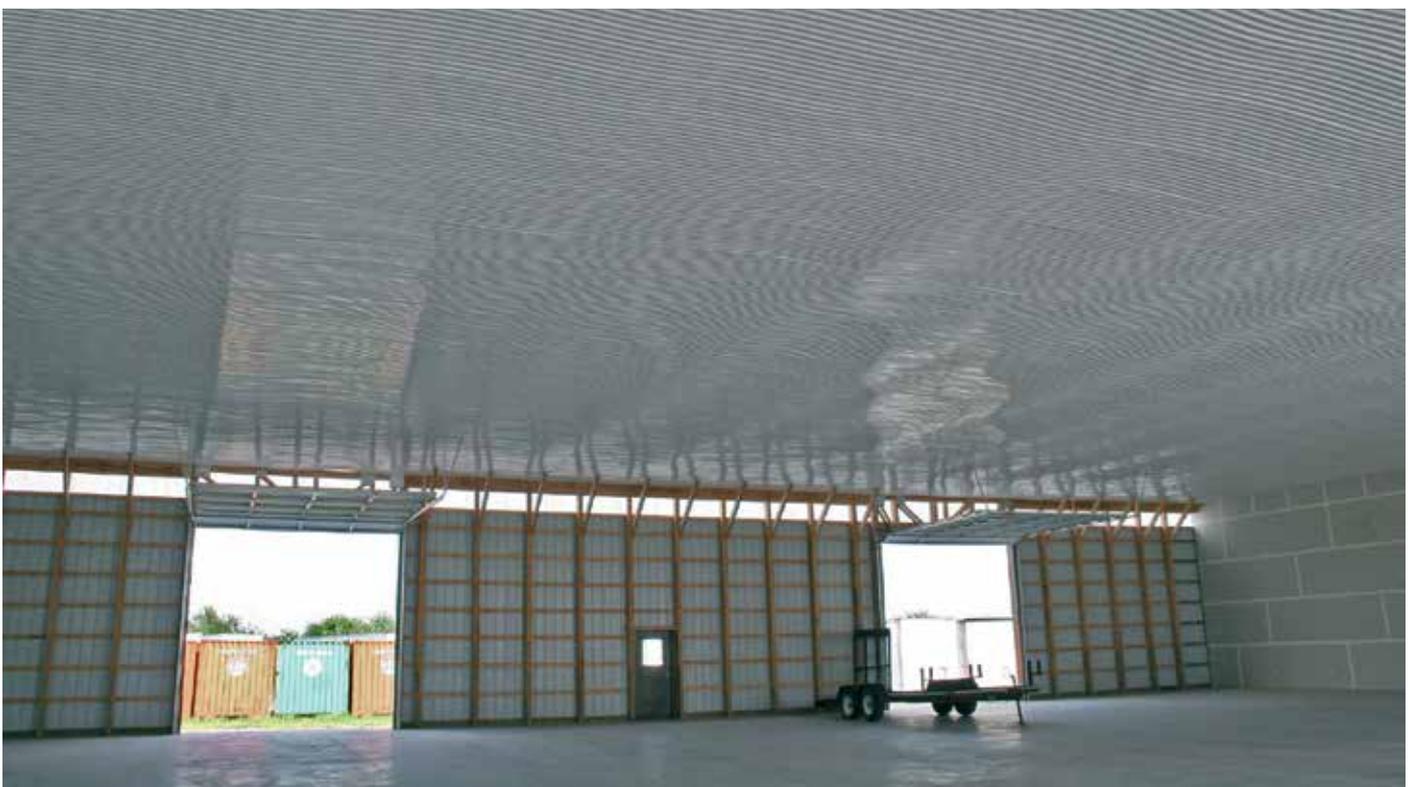


Projects - Industrial Cladding

Project: Industrial Plant - Israel | DURASHIELD® Type: White 1.5mm Greca



Project: Warehouse - USA | DURASHIELD® Type: White 1.5mm Greca



Projects - Coastal Structures

Project: Warehouse in Odessa Port - Ukraine | DURASHIELD® Type: White 1.5mm (Roofing) / Clear 2mm UV (Rooflights), Industrial 100 Profile



Project: Haifa Port - Israel | DURASHIELD® Type: White 1.5mm, 5,6 Waves Profile (Asbestos Replacement)



Projects - Mines

Project: Gaby Mine - Chile | DURASHIELD® Type: White 1.5mm, Industrial 100 Profile



Project: Coastal Chemicals Warehouse - Odessa, Ukraine | DURASHIELD® Type: White 1.5mm, Industrial 100 Profile



Projects - Agriculture and Livestock Structures

Project: Cattle shed - Israel | DURASHIELD® Type: White 1.5mm, Industrial 100 Profile



Project: Henhouse - Israel | DURASHIELD® Type: White 1.5mm, Industrial 100 Profile



02/2015 The data in this publication supersedes previous releases. For the latest update refer to our website: www.palram.com.au

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