ALUCOBOND®

ALCAN

ALCAN COMPOSITES

quality german aluminium composite panels

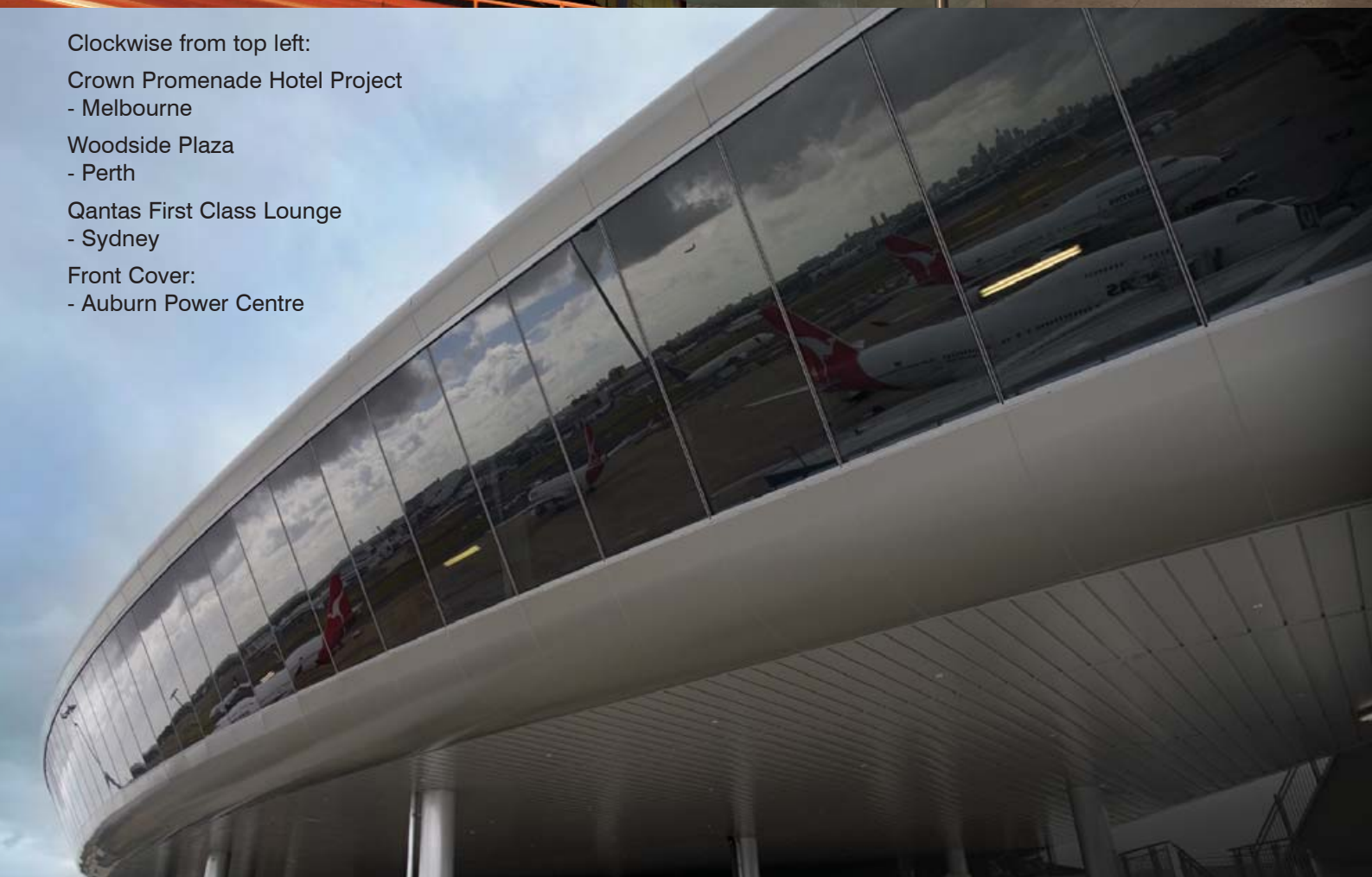
Clockwise from top left:

Crown Promenade Hotel Project
- Melbourne

Woodside Plaza
- Perth

Qantas First Class Lounge
- Sydney

Front Cover:
- Auburn Power Centre



ALUCOBOND® is a light composite material consisting of two aluminium cover sheets and a core made of polyethylene. This simple but extremely versatile product concept has been developed to provide a façade material with a host of distinct advantages for architects: it is stable and yet flexible, has a smooth surface and is available in a number of standard or individual colours; it is weather-resistant, unbreakable, shock-resistant, vibration absorbent and easy to install.

anything is possible with ALUCOBOND®

ALUCOBOND® is an economical synthesis of aesthetics and function. It is therefore the ideal material for suspended rear-ventilated façades, claddings for roof edges and fascias.

The advantages of the ALUCOBOND® technology are most convincing. That is why ALUCOBOND® has been widely used in industry, transport and display for several decades.

free technical support

QANTAS FIRST CLASS LOUNGE

Featuring the shimmering façade of Silver Metallic & Grey Metallic Alucobond aluminium composite material, the Qantas First Class lounge at Sydney's International Airport exhibits all the quality, lustre and luxury that passengers have come to expect.

easy to shape with a wide choice of colours

HISTORY

With its numerous product innovations and state-of-the-art production facilities, Alcan Singen GmbH has been a pioneer in processing aluminium for more than 90 years. Production of ALUCOBOND® started on a commercial basis in 1969 and by the turn of the millennium, 80 million square metres of this light composite panel had been sold worldwide. Since 1969, building owners and architects have successfully chosen ALUCOBOND® as a versatile construction material to turn their ideas into reality and to give buildings and skylines the shape of the future.

HIGH RISE

Individuality and timeless classic styling are the testimony of ALUCOBOND® to the high-rise building and refurbishment market. ALUCOBOND® allows dynamic corporations to really stand out from the competition by offering almost endless possibilities of usage options and colour combinations.

factory pre-finished for consistency of appearance

LOW RISE

The façades of public buildings should be practical, attractive and in keeping with the modern civic environment. The wide array of colours, shapes and detail allows ALUCOBOND® to enhance the overall beauty and ambience of any building in any city.

modern refurbishment of antiquated structures

The combination of surface finish, colour options, durability and flexibility of ALUCOBOND®; all contribute to the restoration of any building, to create a dramatic landmark. ALUCOBOND® is also the totally cost effective method, of contemporary renovation.

lightweight for easy fabrication and installation

why use ALUCOBOND®?

PROVEN QUALITY

- ALUCOBOND® is the original and the world's most widely recognised aluminium composite panel.
- Manufactured since 1969, by one of the world's largest and longest established aluminium producers, Alcan Singen GmbH.
- ALUCOBOND® has a factory-applied coil coated PVF2 paint finish; recognised and proven worldwide as the best architectural coating available today for all climatic and environmental conditions.
- ALUCOBOND® is very cost effective, even in the most complex situations.
- Since 1976, numerous prestigious projects have been carried out in Australia using ALUCOBOND®.

COLOURS

- Available in 30 standard colours, the majority of which are kept in stock locally.
- Also available in a range of 44 complementary colours: minimum order quantity of 2000m^2 applies.

WIDE RANGE OF SIZES

- ALUCOBOND® is available in a wide range of sheet sizes and thicknesses.

FEATURES & APPLICATIONS

- ALUCOBOND® is lightweight, extremely flat and rigid.
- ALUCOBOND® has excellent vibration dampening characteristics.
- ALUCOBOND® can be bent, curved or shaped to any required angle.
- ALUCOBOND® can be used as a fascia, as a cladding panel, for interiors or signage.
- ALUCOBOND® is ideal to fit into any curtain wall system.

PROMPT DELIVERY

- Substantial stocks of ALUCOBOND® are kept at our warehouses in Melbourne, Sydney and Brisbane.

TECHNICAL SUPPORT

- Free technical support and backup is available. Just call the ALUCOBOND® office nearest to you.

AUSTRALIA'S MOST POPULAR COMPOSITE PANEL
ONLY AVAILABLE FROM
ALUCOBOND ARCHITECTURAL PTY LIMITED

Clockwise from top left:

Cross City Tunnel Exhaust Stack - Sydney

D Bah Apartments - Gold Coast

The Distillery, Jackson's Landing - Sydney

Refurbishment - St Leonards, Sydney

Clockwise from top left:

Cummins Building
- Caribbean Gardens,
  Melbourne

IBM Tower - Singapore

Country Road Store - Melbourne

Western Australian Maritime
Museum - Fremantle

Bridabella Circuit - Canberra

CANOPIES & AWNING

When image is a number one priority and consumer recognition paramount, ALUCOBOND® provides the answers for both interior and exterior applications. Lightweight yet strong, ALUCOBOND® is the ultimate material for today's requirements with the durability to retain its sleek good looks long into the future.

large panels for less joints and a clean look

OTHER FINISHES

ALUCOBOND® Spectra Colours have been manufactured to cleverly reflect and refract natural light into the millions of luminescent colours of the rainbow, offering different enchanting colour effects depending on the angle of view.

ALUCOBOND® naturAL finishes amplify the natural beauty and character of aluminium to enhance the design of your architectural project. The finely textured aluminium surface scatters light for a close-up visual effect, while retaining the look and lustre of smooth aluminium from afar.

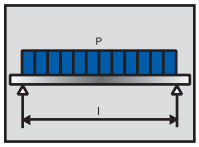
exceptional strength for resistance to blows and breakage

Product Information

ALUCOBOND® is a composite panel consisting of two aluminium cover sheets (0.5mm thick) and a polyethylene core.

It is produced with various core thicknesses in a continuous process.

Mechanical Properties



The composite material is rigid, resistant to blows, breakage and pressure and has high bending, buckling and breaking strengths.

The strength is determined by the 0.5mm thick aluminium cover sheets in Peraluman-100, EN AW-5005A (AlMgI), acc to EN 485-2.

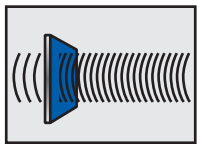
Tensile strength:	R_m	≥	130N/mm²
0.2% proof stress:	$R_{p0.2}$	≥	90N/mm²
Elongation:	$A_{5.0}$	≥	5%
Modules of elasticity: E		=	70000N/mm²

Since the cover sheets determine the bending strength, the core material can be disregarded when calculating the bending tension.

Alucobond Architectural can provide structural analysis using computer calculations based on the Finite Element Method.

Thickness	Weight (kg/m²)
3mm	4.5
4mm	5.5
6mm	7.3

Acoustical Properties



Sound insulation

(acc. TO DIN 4109)

Panel thickness	Average airborne transmission loss R
3 mm	24 dB
4 mm	25 dB
6 mm	26 dB

(Frequency range 100-3200Hz)

Sound absorption

(acc. To EN20354)
Sound absorption factor as
Average = 0.05 for all panel thicknesses.

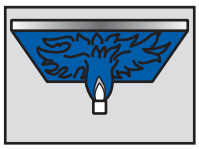
Vibration dampening

(acc. To EN ISO 6721)

Panel thickness	Loss factor d (frequency 200Hz)
3 mm	0.0072
4 mm	0.0087
6 mm	0.0138

The loss factor of ALUCOBOND® is about 6 times better than that of a solid aluminium sheet.

Fire Behaviour



The non-combustible aluminium cover sheets protect the plastic core.

Australia

AS 1530, Part 3 - Indicative results:

Ignitability	Index 0
Heat evolved	Index 0
Spread of flame	Index 0
Smoke developed	Index 0

United States of America:

ASTM E84:	
Flame spread	0
Fuel contribution	0
Smoke density	0
UBC 17-5:	meets test criteria

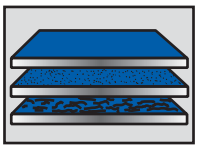
Germany

DIN 4102	Class B2

United Kingdom

BS 476, Part 6 index 0 BS 476, Part 7 Class 1	Class 0 (Bldg.Regul.)

Surfaces



Stove-lacquering

With ALUCOBOND® stove-lacquering, customers can choose from a wide range of standard and metallic colours or select any type of special individual colour. High quality lacquering systems with optimum resistance to weather and industrial pollution are used exclusively. These properties are achieved by using fluorinated bonding agents; for standard finishes PVF2 or FEVE-based top lacquers are used. Special surface effects are achieved on request by using duroplastic fluoropolymers which are virtually as weather resistant as PVF2 and FEVE lacquering systems.

Anodising

DIN 17611 standards determine the criteria for anodised finishes (E6/EVI), minimum thickness of the anodic layer 20 microns, corresponding to BS 1615: 1972 AA20.

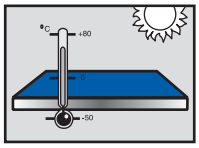
PLEASE NOTE

When working with Natural Anodised ALUCOBOND® that the sheets have rack marks at each end of the panel where they have been held while being anodised. This mark extends 25mm in from each end of the panel on both sides and must be trimmed prior to fabrication. These marks are covered by the protective foil and are not obviously visible.

PVC Tapes

The application of PVC type tapes, Silicone or Polyurethane sealants to the PE protective foil or directly to the painted surface of ALUCOBOND® is not recommended. Plasticizers and/or solvents contained within these products could affect the painted surface resulting in a localised change in gloss level.

Thermal Insulating Properties



Due to its relatively thin and homogenous core ALUCOBOND® is not an insulating panel, however in certain instances its insulating properties can be considered.

Panel thickness [mm]	Thermal resistance 1/Λ = R [m² K/W]	Heat transmittance coefficient U-value [W/(m² K)]
3	0.0069	5.65
4	0.0103	5.54
6	0.0172	5.34

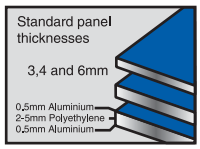
Thermal expansion

This is effectively controlled by the aluminium cover sheets. Actual linear expansion 2.4mm/m/100°C.

Temperature resistance

From -50°C to + 80°C.

Product Range



One side stove-lacquered finish colours:

Refer to Colour Chart

Thickness	:	Standard 4mm For special application 3mm, 6mm
Standard Width	:	1000, 1250, 1500, 1575mm
Special Width	:	min 875mm max 1750mm (subject to min 2000m² per width)
Standard Length	:	2500, 3200, 4000mm
Special Length	:	to customer's specification max 8000mm

Available stock in Australia

For available colours and sheet sizes refer to our Standard Range.

Other surfaces on request:

- Both sides mill-finish
- Both sides stove-lacquered
- Both sides clear anodised

Dimensional tolerances (rounded)

Thickness	mill finish resp. stove lacquered ± 0.2mm
Width	-0/+4mm
Length	1000-4000mm -0/+6mm 4001-8000mm -0/+12mm

Alucobond is produced in a continuous and fully automated process; this process introduces dimensional tolerances and factory edges that require the panels to be trimmed on all 4 edges prior to installation. Alcan Composites and Alucobond Architectural do not recommend installation of untrimmed Alucobond panels

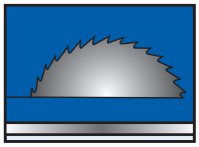
Storage

Protect pallets during storage against rain, penetration of moisture or condensation

Pile pallets in stacks one on top of the other (do not place the panels in an upright position); stacks must not comprise more than 6 pallets of identical size. Avoid storage for a period of more than 6 months.

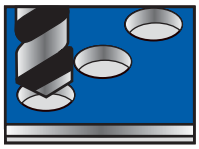
Fabrication

Cutting



ALUCOBOND® can be cut with a vertical panel saw, circular or jig saw.
Conditions for cutting with a circular saw:
Cutting tools/carbide tipped, blade geometry:
Thickness of cutting teeth approx. 2-4mm;
Tapered from outside to inside to prevent jamming.
Tooth geometry: Trapeze tooth/flat tooth
Pitch t:10-12mm
Clearance angle α 15°
Rake angle γ 10° (positive)
Max cutting speed v: 5000 m/min.
Max feed s: 30 m/min.

Drilling



ALUCOBOND® can be drilled with twist drills normally used for aluminium and plastics on machines common for metals. Drill material: High-speed steel (HSS) We recommend metal drills with centre-point.

Contour cutting

ALUCOBOND® can be cut to shape using CNC machining centres, water jet cutting machines, copy routers and jig saws.

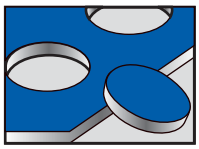
Shearing

Shearing can be done with a guillotine.

To prevent surface damage, use protective pads between down-holders and ALUCOBOND® surface and adjust to minimum down holding pressure.

Use carpet protection on feeder table. Do not use ball supports as they damage the ALUCOBOND® surface. Shearing will cause a slight deflection of the cut edge on the impact side.

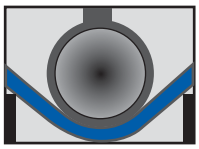
Punching



ALUCOBOND® can be punched using conventional sheet metal punching machines or manual notchers. For clean cuts use sharp tools and dies with minimal cutting clearance.

Punching will cause a slight deflection of the cut edge on the impact side.

Bending

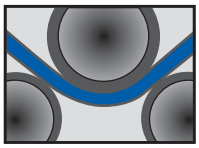


Bending is possible with a folding table or a bending press. Min required inside radius:
ALUCOBOND®: r = 10 x t
t = panel thickness

To protect the surface finish of ALUCOBOND® during bending use padding strips. The spring-back of ALUCOBOND® is greater than that of a solid aluminium sheet.

To determine spring-back for serial production, make tests on sample panels.

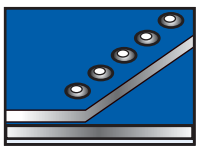
Roll Bending



ALUCOBOND® can be bent using a roll bending machine (pyramid or pinch rollers).

To protect the surface finish of ALUCOBOND® during bending use only polished rollers free of dents and other defects.

Riveting

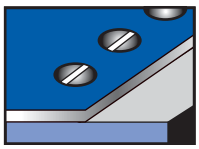


Riveting is possible using solid or blind rivets with conventional riveting tool. For exterior applications allow for thermal expansion and possible building movements.

Welding

The plastic core of ALUCOBOND® can be hot-air welded using conventional hot-air welding equipment and plastic filler rod. Hot-air welding provides a water-tight joint for decorative purpose only. It is not suitable for joints where structural strength is required.

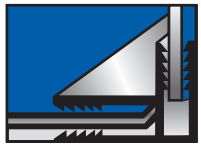
Screwing



Use conventional wood, sheet-metal or machine screws made of stainless steel.

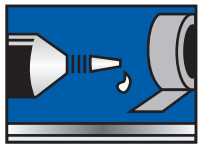
For exterior applications allow for thermal expansion and possible building movements.

Clamping



With serrated corner-joint or butt-joint sections or clamped between special aluminium extrusions

Bonding



For exterior use and structural applications:

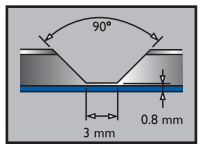
- Adhesive sealing compounds
- Double-sided VHB tapes

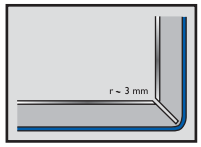
Consult sealant manufacturer for correct application.
For interior applications:

- Metal adhesives
- Double-sided VHB tapes

Adhesives and sealants do not adhere to the plastic core. Apply to the aluminium cover sheet only.

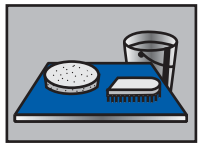
Routing & Folding





ALUCOBOND® panels can be shaped cold by a very simple technique by hand or panel saws, then folding to produce various shapes and sizes. Rout a groove along the folding edge using a disk or end-milling cutter. 0.3mm of core material should remain at the base of the groove. The panel can then be folded by hand.

Cleaning & Maintenance



The frequency of cleaning depends largely on the design, the location of the building and the degree of soiling. For further information please contact your nearest ALUCOBOND® office.

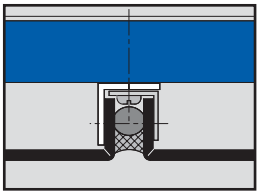
Cleaning agents

Please do not use any powerful alkaline cleaning agents such as potassium hydroxide, sodium carbonate or caustic soda, or any powerful acidic products or heavily abrasive scouring agents such as Vim, Ajax or lacquer-dissolving cleaning agents.

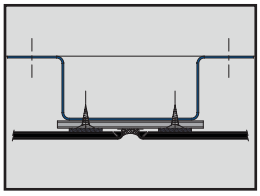
Removing graffiti

It is possible to remove graffiti from ALUCOBOND® panels. Please ask for details.

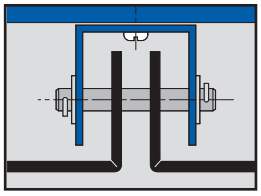
EXAMPLES OF FIXING METHODS



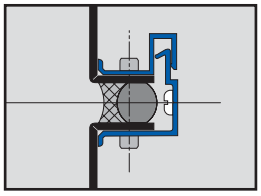
FIXED CASSETTE



SILICONE BUTT JOINT/FLAT STICK



SUSPENDED CASSETTE



ALUCOFIX

colours

ALUCOBOND® and ALUCORE® are now available in 30 standard colours and 44 pre-formulated colours. Custom colours are available on request.

The fluorocarbon (i.e. PVF2) coating is applied to the aluminium coil prior to lamination into a composite panel, using a continuous coil coating process, which is based on the latest technology. The multiple layers are individually stoved at temperatures of between 200-260° C. The quality of the coating is tested according to standards established by E.C.C.A (European Coil Coating Association) of which ALCAN is a member. Fluorocarbon (i.e. PVF2) coating systems combine good formability and excellent surface durability. They are extremely resistant against weathering, strong solar radiation and pollution attack.

Due to different production processes being applied for ALUCOBOND®, ALUCOBOND® A2, ALUCOBOND® Plus and ALUCORE®, slight colour variations may occur between different products. If colour consistency is required do not mix different products.

Solid Colours

No matter whether a soft white or a vibrant red is selected, solid colours are always a good choice when a uniform appearance without special effects is required. The gloss of solid colours is between 30-40% according to Gardner scale.

Metallic Colours

The different appearance of colour and gloss under various light conditions and viewing angles gives these surfaces a vivid impression and brings them to life. The gloss of metallic colours is between 30-40% according to Gardner Scale.

Special Effect Colours / Spectra Colours & naturAL Finishes

These eye-catching finishes applied using the same coil coating process are the result of continuous development of new paint systems and provide evidence of Alcan's know-how and competency in the latest coating technology.

Unless specified, the gloss level of these specialised finishes are between 70 - 80% according to Gardner Scale.

DIBOND® Colours

DIBOND®, the market leader among display panels, is available in a range of standard colours - incorporating the reliable polyester lacquer system and the classical product features of DIBOND®.

The new colour range offers more creative possibilities for applications requiring coloured background in the design and usage of exhibition stands, nameplates, signage and display panels as well as many other fields of use.

This results in additional combinations for more individual solutions.

protective peel-off foil

Unless otherwise specified ALUCOBOND® is supplied with a factory applied peel off foil for protection of the coated surface. Removal of the protective foil is recommended as soon as possible after installation.

In hot weather conditions, some residual glue may stick to the stove-lacquered panel surfaces. Please ask for specific instructions for removal.

PVC tapes

The application of PVC type tapes, Silicone or Polyurethane sealants to the PE protective foil or directly to the painted surface of ALUCOBOND® is not recommended. Plasticizers and/or solvents contained within these products could affect the painted surface resulting in a localised change in gloss level.

directional colour appearance

To avoid possible reflection differences (for metallic colours only), it is recommended that panels be installed in the same direction - i.e. with the orientation of the marking shown on the peel-off-foil of the individual panels running parallel to each other.

sustainability

ozone friendly

The production, application and long-term use of ALUCOBOND® produces no volatile CFC propellants.

ALUCOBOND® core material does not contain nitrogen, chlorine or sulphur. ALUCOBOND® is the natural choice for a huge variety of projects while actively protecting the environment.

life cycle

During decades of use in a rear-ventilated cladding system, ALUCOBOND® protects the building from weathering and the harmful effects caused by industrial and environmental pollution.

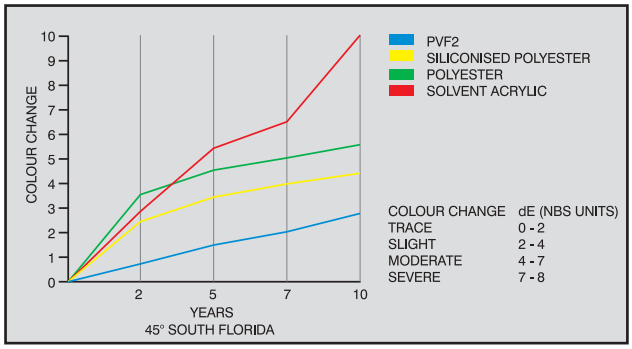
Advantages:
- Lower maintenance costs
- Long-term preservation of the building structure

An external cladding system using ALUCOBOND®, acts as a barrier against solar radiation. The ventilation space between the ALUCOBOND® panelling and the wall or thermal insulation aids in reducing heat transmission.

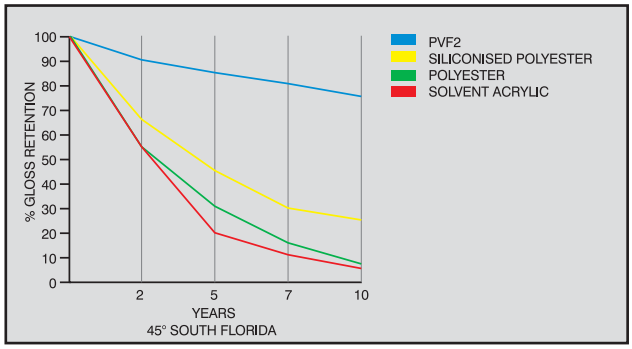
recycling

ALUCOBOND® is fully recyclable, i.e. both the core material and the aluminium cover sheets can be recycled and used in the production of new material.

colour change



gloss retention



corporate identity

ALUCORE® is renowned for its strength and durability, due substantially to its unique honeycomb core. Ideal applications include building façades, floor construction, canopies and roof features.

DIBOND®'s characteristics have no creative limits. Excellent flatness and an unsurpassed smooth finish make DIBOND® the ideal material for interiors and corporate signage. It provides a perfect surface for screenprinting and as a base for painting and laminating.

ALUCORE®

DIBOND®

Contact us

VICTORIA

58 - 70 Hampstead Road
Maidstone VIC 3012

Telephone (03) 9319 3700
Facsimile (03) 9318 6533

NEW SOUTH WALES

29 Henderson Street
Turrella NSW 2205

Telephone (02) 8525 6900
Facsimile (02) 9556 6066

QUEENSLAND

128-132 Mica Street
Carole Park Qld 4300

Telephone (07) 3718 2360
Facsimile (07) 3718 2399

email: info@alucobond.com.au **website: www.alucobond.com.au**

ALUCOBOND® ARCHITECTURAL

HVG HALIFAX VOGEL GROUP

ALUCOBOND ARCHITECTURAL PTY LTD A Subsidiary of Halifax Vogel Group

ALUCOBOND®, ALUCORE® and DIBOND® are manufactured by Alcan Singen GmbH, D-78221 Singen / Germany