

designer's catalogue

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facades  
balconies  
interiors

**brono**span



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# Introduction

Kronospan – a company with over a century-old tradition, a leader in the global market for wood-based products – started its manufacturing operations in Pustków in 1996.

The factory was established on the basis of one of the then existing departments of a local company – the Production Department of laminates.

In 1996–2006 the company had undergone a series of complex technological changes associated with the production of HPL.

As a result, a new production facility was created, which uses cutting-edge technology, technical and product solutions in the production of laminates and HPL compact boards.

Many solutions of environmental engineering were also used during the creation of this company, which helped to overcome the adverse impact of the plant on the environment.

The company's offer includes a wide range of products that are widely used in construction, furniture and interior design industry.

Parameters of the laminates are customized to individual customer requirements. Modern design, rich colours and digital printing give the customers unlimited possibilities for interior design and development of construction projects.

# Product characteristics

Compact boards produced by Kronospan HPL are in accordance with EN 438

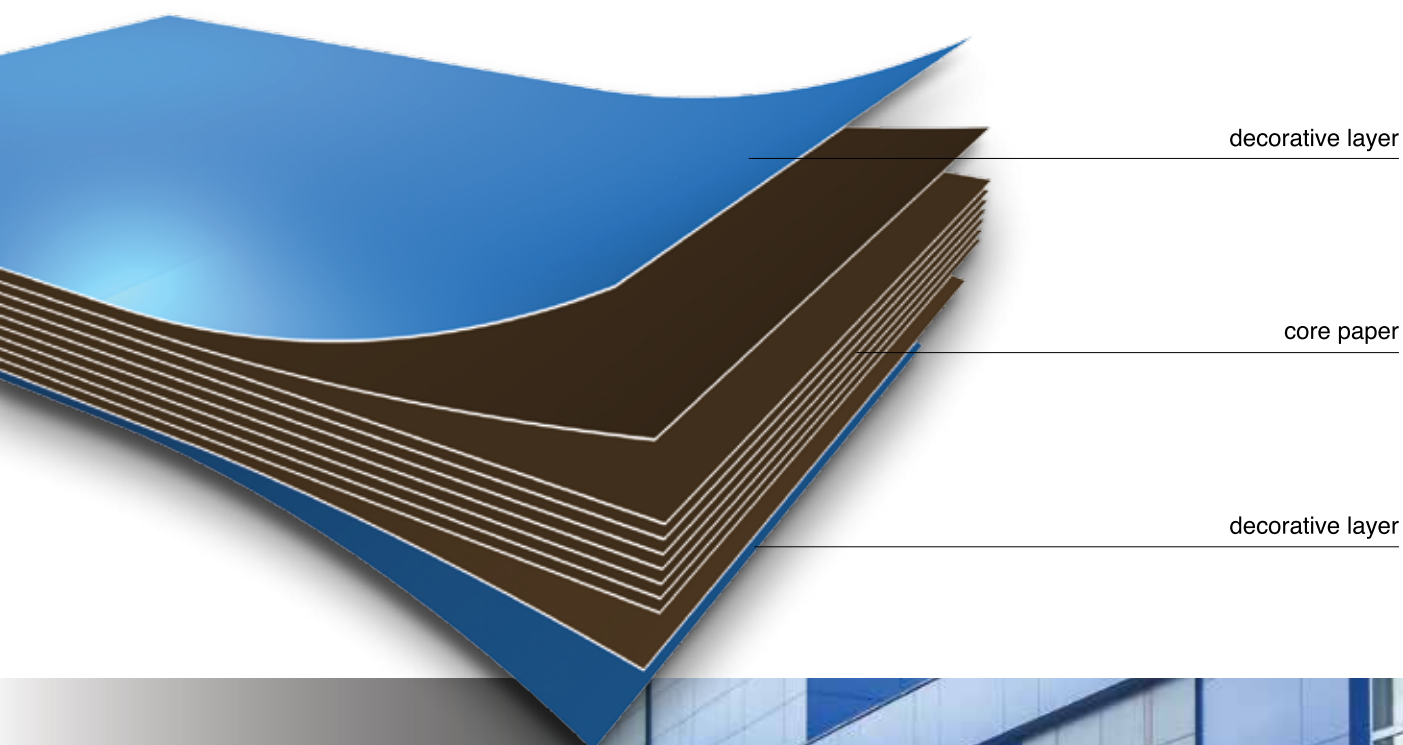
Finished products are made entirely of resin impregnated papers which, after compression at high temperature and high pressure, become a uniform board.

The resulting material is released for sale after complex processes of checking its resistance to various factors, both atmospheric and chemical.

HPL compact boards are characterized by high durability

They are easy and economical to install, they do not require labor-intensive maintenance.

Due to the combination of bending strength and flexibility, HPL compact boards are ideal for use in locations threatened with vandalism.



HPL compact boards are offered in the following sizes:

- 2800 X 1300 mm
- 3050 X 1300 mm
- 2800 X 2040 mm
- 5600 X 2040 mm
- 4200 X 1300 mm

Facade boards (exterior) (one-coloured, wood-like, fancy), have UV coatings tested by 3000 h (according to EN 438). Compact boards (interior) are available in thicknesses from 2 to 40 mm.

## Testing of the surface

PROPERTY		STANDARD	REQUIREMENT
Abrasion resistance	Starting point [rpm]	438-2.10	≥ 150
	Abrasion value [rpm]		≥ 350
Resistance to impact	The height of fall [mm]	438-2.21	≥ 1800
	Sphere diameter [mm]		maks. 10
Scratch resistance	Level	438-2.25	≥ Level 3
	Force [N]		≥ 4
Resistance to boiling water	Weight gain [%]	438-2.12	≤ 2,0
	Thickness gain [%]		≤ 2,0
	Appearance		≥ Level 4*
Resistance to staining	Group 1 & 2	438-2.26	≥ Level 5
	Group 3		≥ Level 4
Resistance to light (Xenon-bogenlampe)		438-2.27	4 ÷ 5
Resistance to water vapor		438-2.14	≥ Level 4*
Resistance to cigarette burns		438-2.30	≥ Level 3
Resistance to stress crack formation		438-2.24	≥ Level 4*
Flexural modulus [MPa]		EN ISO 178:2003	≥ 9000
Bending strength [MPa]		EN ISO 178:2003	≥ 80
Tensile strength [MPa]		EN ISO 527-2:1996	≥ 60
Density [g/cm <sup>3</sup> ]		EN ISO 1183-1:2004	≥ 1,35

Tab. Properties of HPL boards, \* – textures other than SQ

## Product Datasheet

PARAMETER	STANDARD	REQUIREMENT	TOLERANCE
Thickness [mm]	438-2.5	6,8	± 0,4
		8,0	± 0,5
		10,0	± 0,5
		13,0	± 0,6
Lenght [mm]	438-2.6	2800 / 3050	+ 10 / - 0
Width [mm]	438-2.6	1300 / 2040	+ 10 / - 0
Flatness [mm/m]	438-2.9	6,0 ÷ 8,0	≤ 5,0
		10,0 ÷ 13,0	≤ 3,0
Edge straightness [mm/m]	438-2.7		≤ 1,5
Angularity [mm/m]	438-2.8		≤ 1,5

Tab. Product Datasheet.

# Ventilated facades

## Visible mounting - rivets or bolts

### Advantages of using ventilated facades HPL boards:

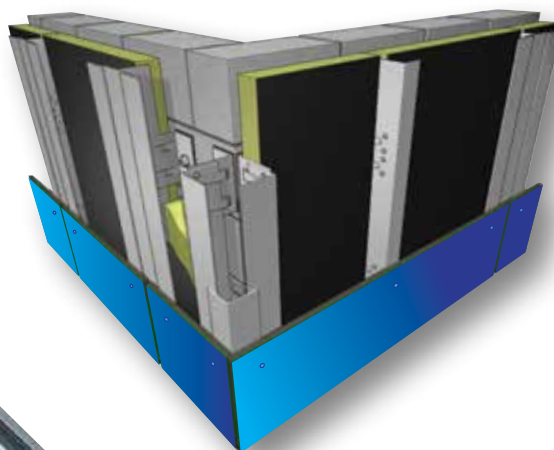
- heat insulation open to diffusion helps to retain natural moisture and constant temperature of the building,
- improves thermal energy balance,
- inhibits erosion of the layers of concrete,
- constitutes an additional sound insulation,
- is environmentally friendly.

The system is based on an aluminum or steel substructure.

HPL boards are mounted with rivets or screws.

Fastening elements are color-matched to the color a.

Decorative elements are also used that gives the facade an individual character, tailored to each building.



Ventilated Facades, one way to finish the building.

They have an air gap between the board and the insulation. The minimum width of the gap should be 20 mm.

Its absence can cause water vapor condensation and deformation of boards, as linear expansion in the lateral and longitudinal direction may be increased by 2.5 mm.



Fig. Ventiladed facades - horizontal cross-section.

## Fixed and non-fixed point

In designing the facade you must remember to retain adequate distance of vertical elements of substructure dependent on the thickness of the boards and about **the principle of fixed and non-fixed point**.

It involves mounting the board with one hole in the board whose diameter is that of a rivet or a bolt, and a number of non-fixed points, where the hole diameter is min. 1.5 times the diameter of the rivet.

The maximum length of the side of the plate should not exceed 3050 mm.

Thickness [mm]	max. D1 [mm]	max. D2 [mm]	a [mm]	b [mm]
6	400	400	20-40	20
8	550	500	20-50	20
10	700	600	20-60	20

Tab. Distribution of connectors – one-span fixing.

Thickness [mm]	max. D1 [mm]	max. D2 [mm]	a [mm]	b [mm]
6	550	400	20-60	20-50
8	700	500	20-80	20-60
10	800	600	20-100	20-80

Tab. Distribution of connectors – multi-span fixing.

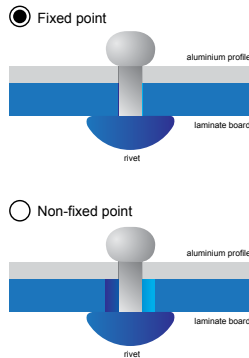


Fig. Fixed and non-fixed point.

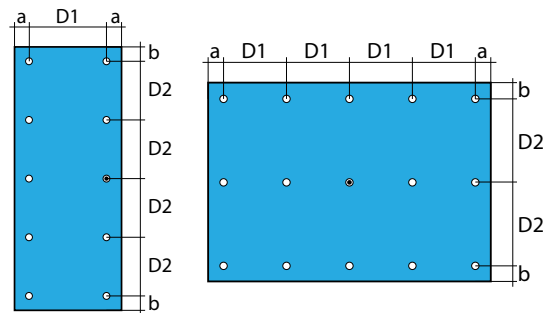


Fig. Distribution of connectors – one-span fixing (L), multi-span fixing (R).

## Bending of panels

Physical and chemical properties of HPL boards also allow their use on arc facades with a radius  $r = 2$  m

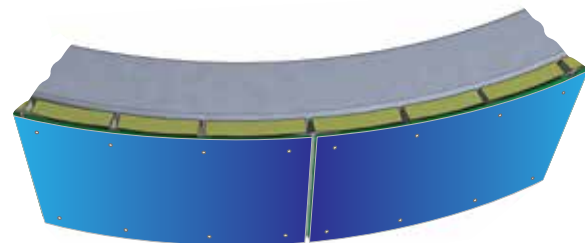


Fig. Bending of elevation panels.

# Ventilated facades

## Non visible mounting - adhesive

- Ventilated facades using HPL boards are the perfect choice for adjusting the facade to the existing building and designing new forms of architecture.
- Used, both, in brick houses and reinforced concrete and framed buildings.



### Montage of boards

Installation with adhesive as a link between the board and aluminum supporting structure is an alternative solution for buildings where HPL boards are decorative elements of facades.

No visible fastening elements improve aesthetics.

Installation work must be carried out by companies certified by the manufacturer of adhesive and comply with their recommendations.

The ambient temperature should be between +10° C to +30° C, during curing of the adhesive, temperature cannot fall below +5° C.

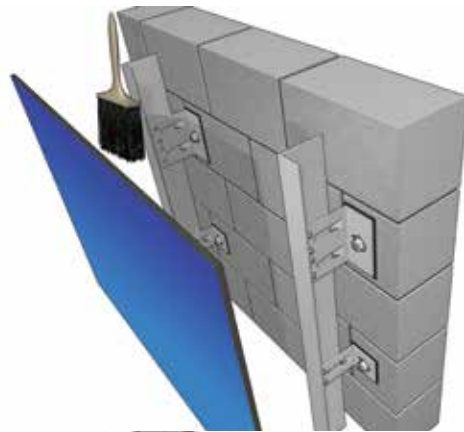
The temperature of the substrate and the board cannot be less than +8° C.





The framed bearing structure of aluminum and HPL board should be cleaned, degreased and activated in order to obtain very high adhesion.

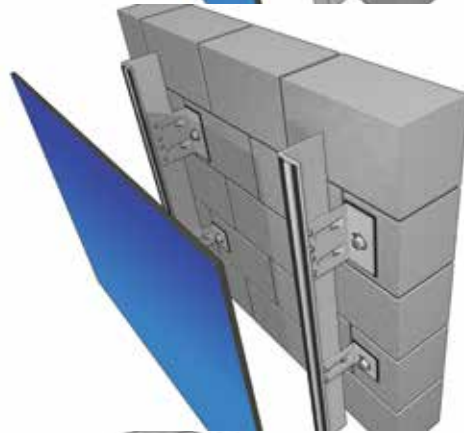
Application of double-sided tape and adhesive starts after complete drying, i.e. after approximately 30 minutes.



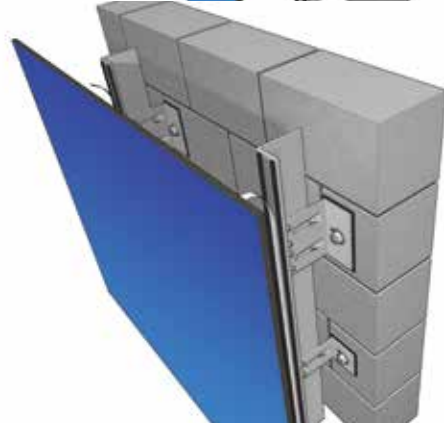
Stick the double-sided tape to, initially, fix the facade cladding to the bearing frame for the time necessary for the adhesive to cure.

Then, apply the adhesive in a continuous band.

The band of the adhesive should be 8 mm wide and 10 mm high.

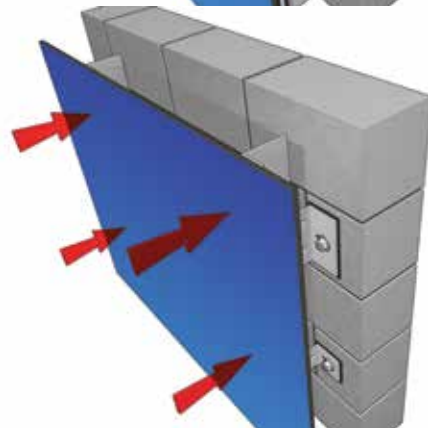


Remove the parchment protective layer of the double-sided tape.



Within 10 minutes, pre-press the board to correctly position it on the facade and push it to the bearing frame.

**Upon contact of the board with the tape, correcting its position is no longer possible.**



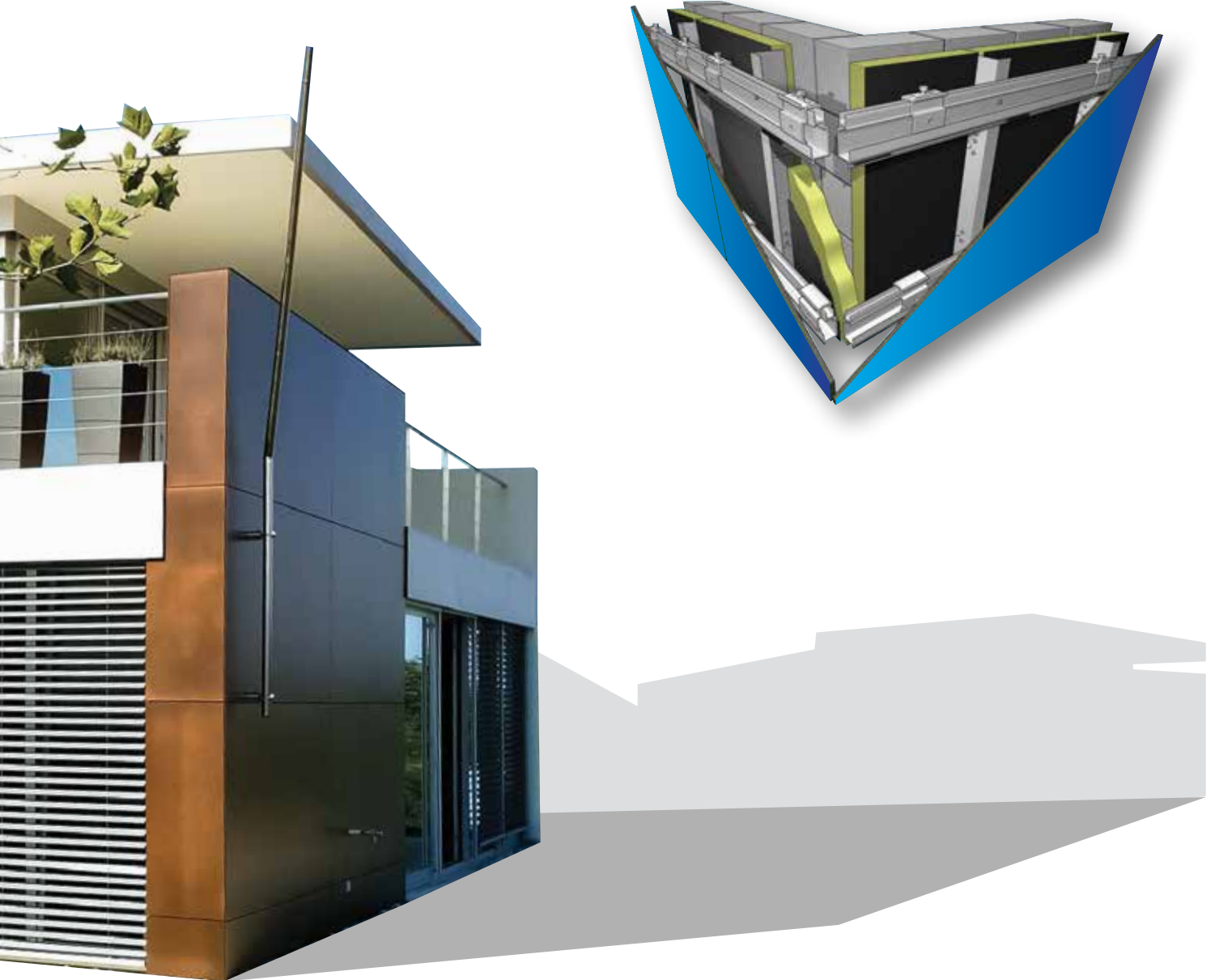
# Ventilated facades

## Non visible mounting - mechanical

- A multi-layer structure of the outer wall is defined as a facade with back air supply or as a ventilated facade.
- The outer layer that protects from rain is separated with airspace.
- The construction consists of a surface layer, air zone, heat insulation layer and the backing.

Not visible mechanical installation meets very high requirements set for ventilated facades.

It combines the advantages of rivet installation (permanent and secure) and aesthetics (no visible fixing elements).



This type of montage requires the use of special aluminum substructure.

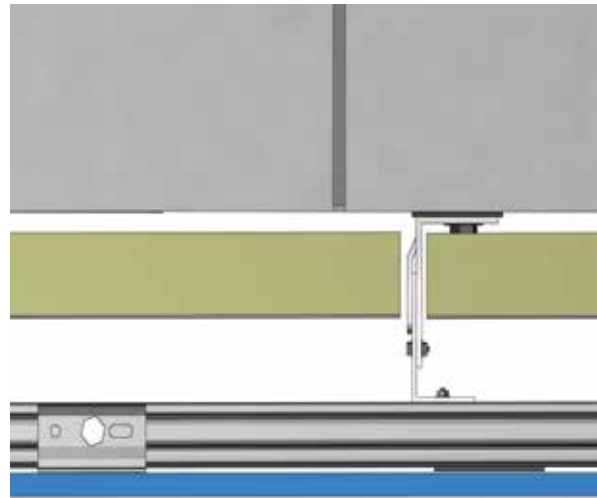


Fig. Aluminium substructure - view from above.

The system allows mechanical mounting of the board with no visible fixing elements and removing the board without the risk of damaging the facade.

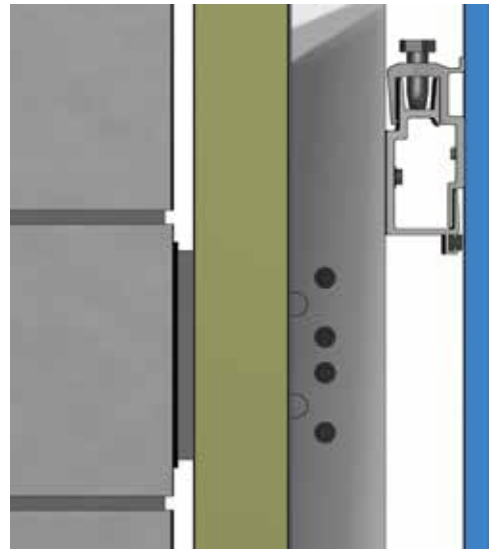


Fig. Aluminium substructure - vertical cross-section.

Mounting is performed on special connectors placed in precisely-drilled holes in the boards with a minimum thickness of 8 mm.

The maximum area of boards and the detailed design of the facade should always be consulted with both the supplier of the substructure and the fixing elements.

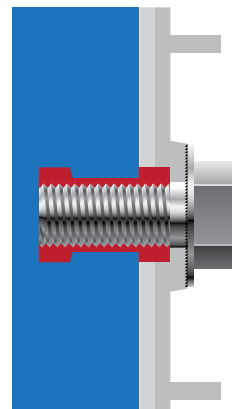


Fig. Special mounting connector.

# Balconies and balustrades

- HPL boards constitute an ideal material for lining balconies, partitions, porches and patios.
- Due to its characteristics and availability of colors, they perfectly blend in with the arrangement of the colors of buildings.

They meet high standards of protection from the wind and act as a masking solution.

They do not require maintenance, keep their properties for many years without the need for painting.



## Montage of balcony panels

There are a variety of ways for fixing HPL boards to substructures:

- fixing to the posts using fasteners or clamping chucks,
- fixing to the posts in sections,
- fixing to the posts – a straight-run board,
- fixing to the posts in Z profiles.



Fig. Fixing to the posts using fasteners or clamping chucks.

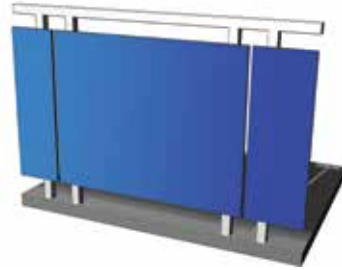


Fig. Fixing to the posts in sections.



Fig. Fixing to the posts – a straight-run board.



Fig. Fixing to the posts in Z profiles.

Mounting HPL boards takes place mechanically using balcony bolts or rivets for aluminum or galvanized steel profiles with the principle of fixed and variable points, and loose adherence to sections.

This allows the boards free work under the influence of changing weather conditions and their mutual cooperation.

In order to achieve better cooperation on the joints, rubber EPDM flexible sections should be used.

Dimensions of steel and aluminum profiles are dependent on the applied thicknesses (6, 8, 10 mm or thicker) and the construction requirements for high balustrades.



Fig. Mounting balcony boards.

# Interior wall linings

- Interior wall linings, as well as external facades, provide adequate ventilation of walls.
- Virtually unlimited colors allow flexibility in shaping the interior and the ability to adjust it to your needs, while enabling long period of use without maintenance.

HPL boards are the essential material fulfilling the requirements.

While the outdoor facade is the building's flagship, the interior must provide adequate comfort, be practical and have aesthetic values.



All panels for interior applications feature high impact strength, high resistance to scratching, are very easy to keep clean and have increased resistance to moisture.

They are also resistant to mould and putrefaction.

Due to these qualities they are widely used in all those places where the surfaces are exposed to extensive use and/or or where one of pre-conditions are high hygienic properties.



## Montage of interior cladding

For mounting the cladding, similar systems are used as in the case of external facades.

The most popular are adhesive systems with no visible fixing elements.

The use of decorative elements between the joints of individual elements give the facade aesthetic look.

The distance between the wall and the board rarely exceeds approx. 50 mm.

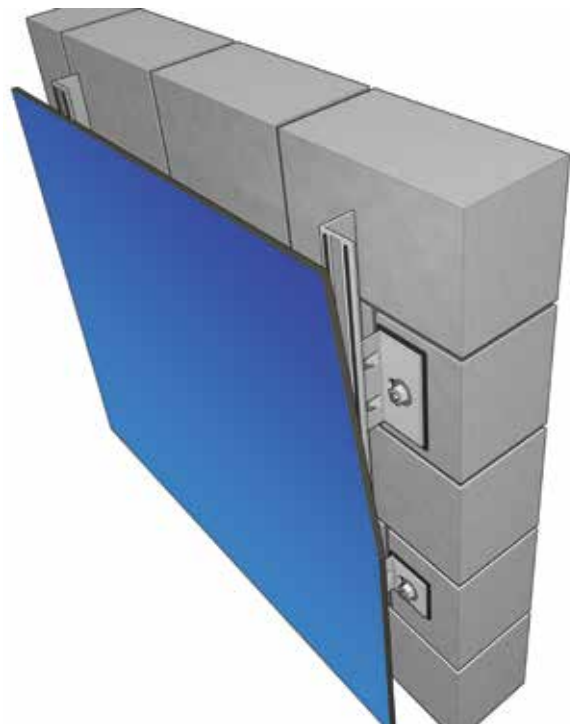


Fig. Montage of the interior cladding with adhesive systems.

An alternative mounting system is mechanical invisible mounting.

Profiles are fixed to the board using special connectors.

This solution ensures the possibility of removing the boards in case you need some building work, without the fear of damaging the boards.

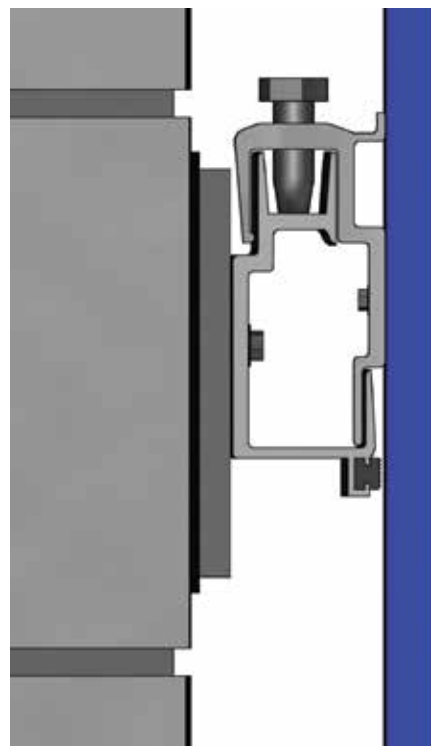


Fig. Non visible installation using special connectors.



## Washroom cubicles

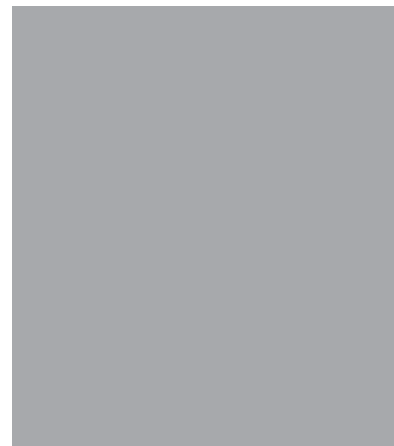
- Washroom cubicles on the basis of HPL boards are designed for all areas of high humidity and high water vapor content.
- Cubicle doors are made of 13 mm or 12 mm thick boards and walls of min. 10 mm thick boards.

Using this type of board is possible due to very low vapor absorption index and no effect of material swelling.

This results in a long-term service life without the need for time-consuming cabins maintenance.

The advantages of cabins based on HPL boards are:

- high strength,
- aesthetics and functionality,
- Large choice of colour,
- Easy to keep clean.





# Swimming pool lockers

Lockers based on HPL boards allow the aesthetic and functional way of furnishing social rooms for employees, changing rooms at swimming pools and all kinds of sports facilities, schools and kindergartens.

Sets of cabinets are freely adjusted to the requirements of the room.

Adequate performance and use of the cabinets provides reliable and long-term use of them without the need for special maintenance.

The high quality of material, the rooms and the very cabinets are easy to keep clean, as required according to the enhanced hygiene requirements.



# Digital HPL

## Digital print on laminate

The ideal product for people looking for individuality and uniqueness.

- A variety of colors and patterns produced by digital printout gives the furniture, walls and doors unique character.
- Designs of HPL boards or laminates with digital printing can be chosen from our wide collection of proposals.
- We can produce also a laminate with a design which you deliver.

### REQUIREMENTS:

- files in vector format or TIFF
- minimum recommended TIFF resolution: 150 dpi
- possible: a photo for scanning
- possible: choice of any design of our proposals or joint development

### POSSIBLE USE:

Cladding panels, walls and partitions, advertisements, stands and exhibitions, furniture for various use, commercial stands, paintings, doors and other.



# Krono Multicore

## Laminate with a coloured core

- **Krono Multicore** boards stand out from other HPL products with the possibility of placing core layers and their colour.
- Own compositions of the core result in unique furniture tops.
- In addition, the selection of **Krono Multicore** decor boards allows you to design unique interior.

One-side laminated boards (e.g. white decor with white core) eliminate the need for additional machining in order to disguise the dark stripe on the edge of the board.

Two-sided laminated boards are used not only as tops, but also the bodies to produce a wide range of furniture.

HPL board thickness (from 4 to 40 mm) gives the full possibility of using the advantages of coloured cores.



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