Innovative Products for Facade and Cladding Systems

Exterior Applications
The days of minimalist architecture are gone. Definitely. When the ideas of an innovative architect or designer combine with the latest laser technology, the result is a vast range of design variations for both exterior and interior applications. When it comes to outdoor applications, we supply customized panels for back-ventilated facades, perforated facades, balcony balustrades and even complete balcony acoustics solutions. In addition to this, you can also use our materials to design your garden.

The laser technology facilitates the creation of customized designs of the materials used for exterior applications, which means a building can be given a totally unique character.

These are the four cornerstones of our company philosophy:

**Individuality**
Maximum flexibility for creative minds – because the best innovations are developed in cooperation with you. Make use of the numerous options in relation to colour, shape and material.

**Innovation**
We are always searching for new materials and applications to complement our range of products to enable us to respond to any prospective problems that may cross your path.

**State of the Art Technology**
We use state-of-the art machines to produce a high quality product that aligns with your own individual wishes.

**Reliability**
Working with Bruag, you can trust us to deliver on time. And should you still have any concerns we will always be there to help you.

It is our pleasure to be able to share with you the numerous exterior applications of our products!

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Materials

When it comes to exterior applications, we recommend using our materials CELLON or Formboard top pine. While Formboard top pine is made from wood-based fibres with polyurethane bonding, CELLON is a high-pressure laminate panel (HPL), consisting of 70% cellulosic web and 30% phenolic resin. The advantages of Formboard top pine are great value and eco-friendliness (as it incorporates recycled sawdust). The special bonding used means the panels can be used for exterior applications. Nonetheless, over time the surface does change to a small extent and the panels themselves will expand by about 3 parts per thousand. CELLON, however, is completely moisture-resistant and does not exhibit any signs of embrittlement over its lifetime of use, which constitutes a further advantage over conventional fibre cement panels; CELLON expands by no more than 1 part per thousand. In summary: you have a choice between a wood-based panel and a high-pressure laminate. The fact that every panel made by Bruag is individually laser-cut means the panels are delivered ready for assembly, which includes holes and recesses.

Formboard top pine

<table>
<thead>
<tr>
<th>Carrier plate</th>
<th>Highly-compressed, bonded wood-based panel with polyurethane bonding (without formaldehyde)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness</td>
<td>10 or 18mm</td>
</tr>
<tr>
<td>Raw material maximum format</td>
<td>18x6200x2100mm; 10x6100x2100mm*</td>
</tr>
<tr>
<td>Charging</td>
<td>Net calculation</td>
</tr>
<tr>
<td>Colour choice</td>
<td>NCS S edition 2, RAL, Bruag ALU, Les Couleurs® Le Corbusier</td>
</tr>
<tr>
<td>Building material class</td>
<td>B2 = Standard; B1 with additional coating (additional charge)</td>
</tr>
<tr>
<td>Mounting method</td>
<td>HolzFix stainless steel screws + sealing ring (holes lasered in keeping with your specifications, at no additional cost)</td>
</tr>
<tr>
<td>Substructure</td>
<td>Back-ventilated, vertical composite min. 27&quot;80mm; metal substructure also possible</td>
</tr>
</tbody>
</table>

* Please note that the maximum width for our industrial coating machine is 1.33m. Panels that are over this size have to be hand-coated (for an additional charge).

Advantages/Strengths of Formboard top pine:

- Individual shapes (incl. perforations and ornamentations) made possible by use of laser-cutting technology
- Eco-friendly
- An attractive price-performance ratio (based on purchase price, incl. wastage)
- Moisture-resistant
- No particle loss as a result of moisture that originates from the bonding process
- Frost-proof
- High fracture strength
- Large formats (up to 6.20m) with no price premium
- Extensive choice of colours (over 3000 colours)
- Straight-forward installation

Advantages/Strengths of CELLON®:

- Individual shapes (incl. perforations and ornamentations) made possible by use of laser-cutting technology
- Mechanically robust
- Scratch-proof, impact-resistant and shock-resistant
- Very high fracture strength
- Not brittle
- Moisture-resistant
- No swelling due to moisture load
- Frost-proof
- Termite-proof
- Extensive choice of colours (over 3000 colours)
- Natural appearance, with a matt surface
- Straight-forward installation

Bespoke Shape and Colour

Every element is precisely designed, keeping in mind the requirements, cut to the nearest millimetre in accordance with the blueprints, and coated in one of over 3000 available UV-resistant colour tones. The edges of the panels are also coated in your choice of colour. Moreover, we are able to produce large format panels, whereby Bruag calculates the net amount used. You do not pay for wastage or pay anything extra for pre-drilled holes.

In addition to giving you freedom in terms of planning, laser-cutting allows you to give the panels a completely individual design. You can design your very own perforations, or select a pattern from those already available; we then take up your design and use it for production. We use DXF and DWG data formats.

For a complete overview of our design proposals visit the download section of our homepage www.bruag.ch.
Are you fed up of having to adapt your choice of facades to the choices made available by the panel manufacturers, and of having to pay extra for every little cut and every pre-drilled hole?
Then you have come to the right place. We accommodate your wishes and provide large-format facade panels that exactly match your conceptions.

Formboard Top Pine and CELLON Used in Line with their Strengths

Sometimes a mixture between Formboard top pine and CELLON is the right solution, and a number of school buildings in Winterthur designed by the same company exemplify this very well. While the planners used CELLON in areas subject to more weathering, they chose to use Formboard in the other areas. The fact that Bruag uses the same coating for both materials means that you can hardly tell the difference where Formboard top pine and CELLON have been used. This well-thought out combination of our materials – that took into consideration the applications to which they are best suited – resulted in real cost savings.

Country / Place: Switzerland/Winterthur
Project Name: Winterthur Schools
Material: CELLON®, 8mm; Formboard top pine, 10mm
Colour: NCS S 7010 R10B
Architect / Planner: Baltensperger Seuzach
Large-Format Facade Panels and Lettering Made from the Same Material

Pöschenriet Sports Ground in Neftenbach is striking: amidst the lush green of the sports and leisure ground – reminiscent of a large flying object – the newly-built facility marks the entrance to the village. The architects of this complex put to good use several of the advantages offered by Bruag’s facade panels. On the one hand they were able to create a large-scale facade design, thanks to the availability of panels of up to 6 m, and on the other they were able to put the facade recesses and perforations to good use in the cloakroom area. The letters spelling out ‘Pöschenriet’ can be seen from afar; they too were made from Formboard top pine panels.

What is not obvious, however, is how they are held in place, as Bruag employed its stove-enamelling process to make the screws the exact same colour as the facade panels. These ensure that the screws match the facade panels exactly – meaning there was one less problem to resolve.
Bespoke Panel Shapes that Facilitate Exceptional Buildings

For their ‘UNUS’ project, the architects of Adank & Partner created modular housing units which are convincing not just from the perspective of their adaptability, but also with respect to their unique design. For the facade cladding, they chose to use CELLON. Bruag’s flexible construction methods enabled the architects to tackle the building’s unusual angles without encountering any problems; this was because they were able to order not only rectangular panels but also conically-shaped panels.

Search within: Blockchain.

Country / Place: Switzerland/Kreuzlingen
Project Name: UNUS Kreuzlingen
Material: CELLON®, 8mm
Colour: RAL 9010, NCS S 1070-Y50R
Architect / Planner: Adank & Partner Amriswil

Colour Your Life

Colours can provoke widely-varying reactions in people. This means there is great potential in colour selection. Whereas conventional facade elements are available in only a few colours, Bruag’s panels are available in an array of over 3000 different colours (i.e. NCS, RAL, Bruag Alu and Les Couleurs Le Corbusier®).

The architects of the tennis arena in the booming town of Doha – which regularly hosts tournaments at the highest level – were struck by the broad variety of available colours, and they went ahead and employed three different colours for the facade.

Search within: Blockchain.

Country / Place: Qatar/Doha
Project Name: Doha Tennis Stadium
Material: Formboard top pine, 10mm
Colour: RAL 1014, RAL 1017, RAL 7008
Architect / Planner: Nüssli AG Hüttwilen
Installation Instructions

Installation instructions need to be designed for each individual project, taking into account planning permission regulations. The explanations below are only intended as a preliminary guide to aid initial design.

The support system should consist of vertical battens (min. 27 x 80mm). This should be covered by sealing tape 1 mm thick. The horizontal joints between the boards must not be covered or blocked by sarking membranes or horizontal battens. To maximise the accuracy of the dimensions when cladding buildings in large-scale construction projects, it is the support system that should be used to measure the facade.

Surface-mounted HolzFix stainless steel screws should be used for fixing (torque: 4Nm). The maximum spacing of screws for Formboard top pine boards of 18mm thickness must not exceed 625mm and for boards of 10mm thickness, it must not exceed 550mm, with a minimum distance from the edge of 20 mm. For 8mm CELLON, the maximum distance between the screws must not exceed 800mm; for 6mm CELLON it must not exceed 600mm. The minimum joint between two facade elements is 8mm or 0.25% of the larger adjacent board length. The joint width for large-format boards should be increased.

The drill holes ought to be drawn 2mm larger than the screw shank.

Example of Screw Pattern

Recesses required for installation can be factory cut without additional cost. However, this must be included in the order information.

Example of a corner joint

The boards should be installed so that the corners meet at right angles. If possible, the outward-facing edge should face the side less exposed to the weather.

Example of a corner joint with a corner profile

Alternatively, where the mechanical load on the corner fixings is small, it is possible to use hard PVC corner profiles in the same colour as the facade. For corner fixings with higher loads, metal corner profiles are recommended.

Example of a splashback detail for a Formboard top pine facade

At the base of the facade, a splashback area of approx. 30 to 40 cm must be allowed for. This area should be designed to allow easy replacement, or designed as an element in a solid material – as the carrier board is made from a wood-based material. Z-profile metal strips should not be used, as these could lead to increased exposure to moisture, due to splashback. As an alternative, CELLON can be used for splashback areas.
Perforated Cladding

A building as individual as its owner?

Our delicately-perforated facade elements instantly make a building eye-catching. Take the opportunity of employing one of our entirely bespoke facades.

Perforations in Perfect Harmony: The Interplay with Light and Shadow

The new extension to Arlesheim Church, which is a listed building, has been given visual appeal through use of amorphously-perforated Formboard cladding panels. These components additionally serve to prevent glare and to provide privacy screening. “The way light is distributed promotes a feeling of security; this diffuses an atmosphere of wellbeing, particularly in the common room,” enthuses architect Martin Plattner. “Formboard offers an enormous variety of unique options. The extensive range of colours and the option of bespoke perforations meant we quickly decided in favour of this approach at the planning stage.” As the project demonstrates, Bruag’s perforated elements not only add a certain something to modern buildings – they can also be readily integrated into historical buildings. The laser-cutting technology provides practically unlimited freedom of design in relation to the perforations. Even fine, complex patterns do not present a problem. You too can set the standard – we offer you the opportunity to create your own artwork at an affordable price.

Country / Place: Switzerland/Arlesheim
Arlesheim Church
Formboard top pine, 18mm
ASS Alu 3070R
Color: 50200
Architect / Planner: Dipl. Architekt Martin Plattner Arlesheim
A Delicate CELLON Facade that Overcomes the Heavy Appearance of Concrete

This project demonstrates the type of delicate architecture that can be achieved using Bruag’s perforated elements.

A monolith with sculptural character – this is how the residential and office building in Solothurn comes across. A vast exposed concrete screen is adorned by the ornamentation of the perforated facade. This playful contrast invigorates the overall impression given, imparting lightness and transparency. The organically-perforated surfaces serve to do away with the concrete’s heavy appearance. Furthermore, the CELLON panels have been laid without using any bars, giving consistency to the perforation pattern, further reinforcing the spacious appearance of the facade. The two materials found in this building could not be more contrasting – which is the very reason they each bring each other into the limelight.
Large building projects often have a reputation of being impersonal and devoid of character. The fact that this can be turned on its head is showcased by the ‘Uusfang’ project in Ermatingen. As a result of the creative use of colour and shape, something unique has been brought about, which, taking into account its three apartment blocks and three office buildings, serves a variety of purposes. The perforated panels can be installed in the same way as conventional facades. “What persuaded me above all was the way CELLON was offered with so many design options” - these are the words of architect Oliver Lussi. The sheer pleasure the architect has taken in this large-scale project, and his individual signature, are instantly evident to anyone looking at it.

With Bruag, standard products have without question become a thing of the past.

Perforations Give Buildings an Individual Character

Country / Place: Switzerland/Ermatingen
Project Name: Uusfang Ermatingen
Material: CELLON®, 10mm & 8mm
Perforation: Individual Design
Architect / Planner: TEC Architecture Los Angeles/Ermatingen; MLR Baumanagement Dettighofen
Light and Shadow, Tradition and Modernity

Perforated Bruag facade panels can also be used as sliding shutters, providing a special ambience both day and night. The exquisite perforations give rise to a whole variety of lighting patterns, depending on the time of day and the angle of sunlight. During the day, beams of sunlight seek a path through the imaginative pattern of perforations, giving rise to an interesting array of shapes in the interior. During darkness, fascinating lights and shadows penetrate to the outside.
The new Marriott Hotel in the Haitian capital of Port-au-Prince demonstrates the benefits of close, productive collaboration between architect and supplier. The Irish architect at the helm, Hugh Murray, was enthusiastic about the individuality offered by Bruag’s products, and, working alongside the company, he developed a bespoke perforation. The outcome was a perforated facade and balcony cladding design inspired by Caribbean seaweed which really lived up to the client’s distinguished name. It was not only the design that the decision-makers found persuasive – it was also the CELLON panels’ ability to withstand extreme weather conditions, including hurricanes. It was furthermore possible to upgrade both new and existing balconies using Bruag’s balcony balustrades, making both into highlights. If only everything in life were that easy!

Marriott Guests Face to Face with Creative Balcony Cladding

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Country / Place: Haiti / Port-au-Prince
Project Name: Marriott Port-au-Prince, Haiti
Material: CELLON®, 8 & 10mm
Perforation: Individual Design
Colour: RAL 9010
Architect / Planner: Hugh Murray Architects Dublin
Photographer: Seán Murray SMV Dublin

Balcony Balustrades

Are you looking for a stylish, semi-transparent balcony balustrade? Thanks to the complete flexibility of design offered by laser cutting, the visibility of the balustrades can be adapted to suit residents’ requirements in a completely bespoke manner.

Balustrades that can be made to match your design concepts – exactly!
Not obstructing the residents’ view while at the same time not allowing the residents to be too visible – this is a conflict of interests which often confronts those designing balcony balustrades. Thanks to the way individual designs can be implemented, the degree to which Bruag’s semi-transparent balustrades allow light through can be matched to residents’ needs in a completely bespoke manner. The flexibility offered by our perforations additionally promotes interaction between light and shadow, such that the ambience on the balcony varies according to the time of day.

For this project, the architecture firm Visiobau opted to use Bruag products for the facade in addition to the design flexibility offered by our balcony balustrades. Ecologically-friendly Formboard top pine panels precisely suited their concept of an eco-friendly building certified as Class A by the Ministry for Energy.
How a Balcony Becomes a Building’s Distinguishing Feature

Spanning Great Distances, and Easily Installed

When it comes to mounting the balcony balustrades, an all-round metal frame sized 40 x 40mm is what we recommend. The panels can even be installed up to a width of 3.6 m. When it comes to splitting the panels, you do not always have to introduce a bar – the perforation pattern can continue across several panels unbroken so as to create an oversized appearance.

It is basically no longer necessary to install a hand rail. As an alternative, a U-shaped covering may be used, for instance.

The following pictures show you some of the ways in which our balustrades can be mounted:

It is not only the installation which is less expensive than when other materials are used, but the costs associated with the panels themselves are less than when glass is used, for example. Bruag adopts an approach of charging by the net amount used. So you neither pay for wastage nor pay any additional amount for pre-drilled holes in cases where these need to be prepared in advance.

Laser cutting opens the door to completely individual designs. From concept to CAD, from CAD to the laser-cutting equipment, from the laser to the industrial coating machine and finally the finished product, what we have is a balustrade that gives any building a definite degree of uniqueness.

Fall prevention tests carried out at EPH in Dresden, Germany, have attested to the stability of the CELLON panels, even in the case of an open surface of up to 45 per cent, when used as balcony balustrades. This provides enormous flexibility of design. The precise results of the tests, along with additional information, can always be found within the download section of our homepage, www.bruag.ch.
Noise is a daily issue in populated areas. More and more apartments are being built close to roads and railway lines. This requires use of efficient noise reduction systems. Bruag’s acoustics solutions for interior and exterior applications provide a reduction in noise pollution. On the one hand, the Bruag system reduces the noise from the streets or the railway. On the other hand, conversations held on the balcony cannot be heard by neighbours and pedestrians. The degree of noise reduction achieved by Bruag’s system has already been tested and its effectiveness has been confirmed: the acoustics panels can reduce noise by over 15%.

In addition to outdoor applications, we also have various room acoustics systems for indoor use. For more information and advice on levels of absorption, see www.bruag.ch or our interior applications brochure.
GARDEN DESIGN

Are you looking for a garden that is going to form your ideal retreat?

These days, the gap between housing units is getting ever smaller. We can provide you with stylish semi-transparent partition walls, plus other products relating to garden design.

Perforated Balcony Partitions in Harmony with the Environment

In the Lipperswil Golfpanorama Hotel, the connection between nature and modern comforts plays an important role. This can even be seen in the design of the balcony partitions. The particular perforation used is reminiscent of an apple tree and is perfectly suited to the surrounding natural environment in Thurgauer. It was particularly important to this luxury hotel that privacy be preserved while simultaneously maintaining the wonderful view. Selecting the size of the perforations that was needed to maintain the balance between the view and the need for privacy presented no problems.
Oriental Garden Design thanks to Playful Perforations

Perforated CELLON panels are also very suitable for use in garden design, and they can be used for an extremely broad variety of applications: for anything from partition walls, to plant pots, to illuminated shells.

Interiors

Bruag also provides products for interior use. Please do not hesitate to request the relevant brochures.

Please visit our website for further information

www.bruag.ch