



# Materials guide

Nya ögon på plast i arkitekturen

**IKEM**  
Innovations- och kemiindustrierna i Sverige

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## PLASTICS – ARCHITECTS OF MODERN AND SUSTAINABLE BUILDINGS

Plastic is a wide range of synthetic or semi-synthetic materials used in a huge, and growing, range of applications.

Although plastics have been around for about 100 years they are considered to be modern when compared to traditional materials like wood, stone, metal and glass. In recent decades plastics have enabled numerous technological advancements, new design solutions, eco-performance enhancements and further cost-savings.

Plastics are not always visible in buildings, but the building and construction industry uses them for a wide and growing range of applications, for example

- Within the structure of a building, plastics contribute to insulation, window-installation, wiring, piping and roofing.
- Inside the home, plastics provide wallpapering, flooring, awnings, laminated kitchen and bathroom furniture.

The use of plastics in building and construction saves energy, reduces costs, enhances quality of life and helps to protect the environment at the same time. Plastics applications also tend to be easy to install and require minimal maintenance. As such very limited additional consumption over energy and resources is needed to ensure their continued functionality.

We hope that the examples in this leaflet will give you inspiration. All materials described are available for the production of your café.

### **Pontus Alm**

Head plastic conversion,  
IKEM – Innovation and Chemical Industries



## Windows and doors

### WINDOWS AND DOORS

Windows and doors made with plastic profiles increases the energy efficiency of the building. High-performance profiles of uPVC for windows and doors outperform the alternatives in thermal ratings thanks to very good thermal insulation properties.

#### **Windows – Enomic fönster and Plastfönster Avesta**

The use of plastic windows in Europe began in the 50's. One of the advantages is the heat savings offered by modern plastic window profiles. Therefore, they are used in low-energy buildings. In addition, their durability and hardness means that high-quality plastic windows can last for a long time, and the first 50 years with little or no upkeep required. This cuts out the cost and time needed to fix or re-paint them, as well as the financial and energy resources involved in replacing them. There are several European Standards for the performance characteristics of windows. Ask the companies below for more information.

A further advantage is the variety of design possibilities that plastics window profiles offer. They can come in almost all colours, styles and settings to suit any kind of architecture. From the cutting edge of modern design to renovated historical buildings. At the end of their life circle, plastic window frames can be recycled or handled in a waste-to-energy scheme. During 2016 around 250 000 ton of PVC window profiles and related products were recycled in Europe as a part of the schemes funded by the PVC industry.

#### **Doors – Enomic fönster and Plastfönster Avesta**

PVC profiles are also used to produce different types of doors, for example sliding doors, hinged doors and folding doors.

The advantages are, like for the windows, the heat savings, the durability and the hardness, the low maintenance and design possibilities.

**Web site Enomic Fönster:**  
[www.enomicfonster.se/net/se/Inspiration](http://www.enomicfonster.se/net/se/Inspiration)

**Web site Plastfönster Avesta:**  
[plastfonster.se/foretag](http://plastfonster.se/foretag)



## Flooring

### FLOORING

Vinyl flooring is durable, resistant and easy to clean. At the same time they are soft and quiet to walk on. Patterns and colors can be varied in infinity.

#### **Tarkett – iD Mixonomi: a creative concept like no other**

Created for Architects and Designers, iD Mixonomi is a new Modular Vinyl tiles flooring collection in many different shapes and sizes that makes custom-made interior atmospheres possible. Customers can create custom-made flooring compositions – from the timeless patterns to the most vibrant collages – by mixing colours and shapes with infinite combination possibilities.  
<http://tarkett.com/en/content/tarkett-honoured-red-dot-award-id-mixonomi-flooring-collection>



#### **Tarkett – iQ Megalite: a brand new design**

The new iQ Megalite collection is a unique crystal design offer which brings an exclusive high end design level, enhancing the elegance of materials. It is the top-of-the-range design to give style & elegance to spaces with a stunning multi-faceted crystal effect.



## Woven flooring

The entire range has been renewed, with the introduction of a striking new pattern – Graphite. This new design (6 colours) complements the existing design, Pearl, whose 18 colors have been renewed as well.  
[https://proffs.tarkett.se/sv\\_SE/produkt-se\\_0101-homogena-plastgolv](https://proffs.tarkett.se/sv_SE/produkt-se_0101-homogena-plastgolv)

**Visit the company's web site:**  
[www.tarkett.se](http://www.tarkett.se)

### WOVEN FLOORING

Floorings made of woven plastic fabric with a backing. Is a fast growing segment.

#### **Bolon**

Bolon is a Swedish design company that makes innovative flooring solutions for public spaces, and run by Annica and Marie Eklund, the third generation to own the family business. Under their leadership, Bolon has transformed from a traditional weaving mill into an international design brand with a list of clientèle that includes Armani, Google, Volvo Cars, Adidas, Skype, Missoni and Radisson Red. With a strong commitment to sustainability, we design and manufacture all our products at our facility in Ulricehamn, Sweden. Today, Bolon is recognised worldwide for our award winning flooring and our collaborations with some of the world's most acclaimed innovators and creatives.

**Visit the company's web site:**  
[www.bolon.com](http://www.bolon.com)



## Floor tiles

### FLOOR TILES

Floor tiles made of plastic is highly resistant to mold and moisture, making it popular for kitchens, bathrooms, laundry rooms, and just about any room in which occasional spills and moisture are a concern. Easy click installation makes it possible to install an entire floor in just a few hours.

#### **BERGO Flooring**

BERGO Flooring is an innovative, ECO-friendly, family company. With 45 years of experience. BERGO Flooring is the world leader and the original within multi-functional floor tiles.

All production is proudly made in Sweden. BERGO makes environmentally friendly, award-winning floor tiles specially developed for various applications within five different business areas;

HOME – garages, terraces, balconies

PUBLIC – shops, pool areas, offices

EVENT – exhibitions, racing teams, temporary floors

MARINE – shipdecks, balconies

SPORT – multi sport arenas, tennis courts, play grounds

A Bergo floor solves many problems thanks to the ventilating and flexible design and is particularly suitable for installations on damp surfaces, but also cracked / uneven subfloors and worn wooden decks. Their products are available in a wide range of designs and colors, harmoniously coordinated.

Visit the company's web site:  
[www.bergoflooring.com/sv](http://www.bergoflooring.com/sv)



## Pipes

### PIPES

Plastics are a popular choice for modern water, gas and sewage piping.

Plastics pipes are:

DURABLE – highly resistant to corrosion.

VERSATILE – can be used above or below ground and easily produced in a range of shapes and sizes.

ECONOMICAL – easy to install and require very little maintenance over time.

LONG-LASTING – can function normally for up to and over 50 years.

SAFE – the most reliable option to transport water.

Energy-efficient – preventing heat from escaping because plastics are good heat insulators.)

#### **Pipelife**

Pipelife is a leading manufacturer of plastic pipes in PE, PP and PVC. The product range includes the following areas: sewage systems, drainage, pressure pipe systems, indoor drainage, cable protection, infiltration system. The company's aim is to increase our quality of life by developing and providing piping systems for transport and protection of water, liquids and energy.

Visit the company's web site:  
[www.pipelife.se](http://www.pipelife.se)



## Profiles

### PROFILES

Extruded plastic profiles are excellent as replacement for conventional materials in a wide range of industries, including the building and construction sector. As a building material, plastic has excellent properties: It is weather-resistant, strong, non-corrosive and recyclable, and it can be coloured and moulded into any shape.

Whether used as system profiles in private homes and public buildings or as building components, plastic profiles offer ease of installation and an amazing array of possibilities.

#### **Primo profiles for the building industry**

Primo's products for the building industry, whether DIY or customised integrated solutions are available in a huge selection of colours and qualities, meaning no need for further treatment such as painting etc. The plastic material's smooth surface is hygienic and cleaning-friendly.

In addition to durability and maintenance, plastics are also more sustainable and cost-effective compared to other materials in the value chain, partly because it is lightweight, and partly because the production costs and supply chain are reduced in several areas: Less raw material is required, and the production process takes less energy, handling/transport is easier, less fuel is consumed and there is less pollution from transport, and less waste.

#### **DIY profiles**

Profiles for the building industry include rigid and soft skirtings, architraves, gaskets, cornices, cable ducts, glazing beads and finishing trims of all shapes and sizes. Primo's Cover(it) concept is an elegant smart-click system, which ensures fast fitting without any visible screws or nails.

<http://www.primolister.com/products/concealing-wiring>

#### **Lavella: Cladding boards for facades**

Extreme durability plus a minimum of waste and maintenance make Primo's Lavella system in cladding boards a sustainable and cost-effective solution.

Cladding boards are useful for covering facades, where a maintenance-free surface is needed or wished for.

Drawing of Primo's Lavella profiles available in our online catalogue:

<http://www.primo.com/products/building/building/exterior-profiles?PageNum=1>

**Visit the company's web site:**

**[www.primo.se](http://www.primo.se)**



## Roofing

### ROOFING

Roof coverings and membranes are very flexible and withstand all kinds of extreme weather. Covered membranes in roof structures are generally referred to as ballasted or protected roofs. The ballast can be concrete slabs, pebbles or soil as the basis for a green roof.

#### **Protan**

Protan's roof coverings and membranes have been developed for the tough Scandinavian climate, so special attention has been paid to material properties at low temperatures. Long-duration tests show that, even after 30 years, Protan's roof coverings and membranes still retain their beneficial properties and will function for many years beyond their expected life.

Protan's flexible solutions help to enhance the architecture, as well as the building's appearance and identity. The roof helps to send a message about the building's purpose, character and relationship with the surroundings.

Protan cooperates with RoofCollect on the recovery of old roof surfacing [www.roofcollect.com](http://www.roofcollect.com).

Visit the company's web site:  
[www.protan.com](http://www.protan.com)



## Films

### FILMS

Plastic films are very flexible and used in a growing range of applications in the building and construction industry. Both for interior design and in the building as a barrier for humidity.

#### Riflex Film

Riflex Film is one of the few companies in the Nordic region who produces plastic films by calendering technology. We focus on specially developed niche products for mainly technical applications. We manufacture one of the thinnest materials and we have one of the widest calanders in Europe. This enables us to supply sheeting up to 2300 mm wide and thickness from 0,04 mm to 1,5 mm. We are able offer different features such as fire retardancy, UV resistance, antimicrobial treatment, chemical resistance and aging resistance films. All films are available in different colours.

Riflex Film is committed to sustainability and we are concerned about the environment. We recycle all waste internally. Also, we cooperate with Vinyl Plus, an organization working for PVC to remain as a sustainable alternative. We have our Riflex eco-Film™ product line featuring bio based plasticisers coming solely from renewable sources. We have also launched our concept of Riflex freeFilm™ with other plasticisers than phthalates.

Key applications for our film include:



#### Products for Projection Screen manufacturing

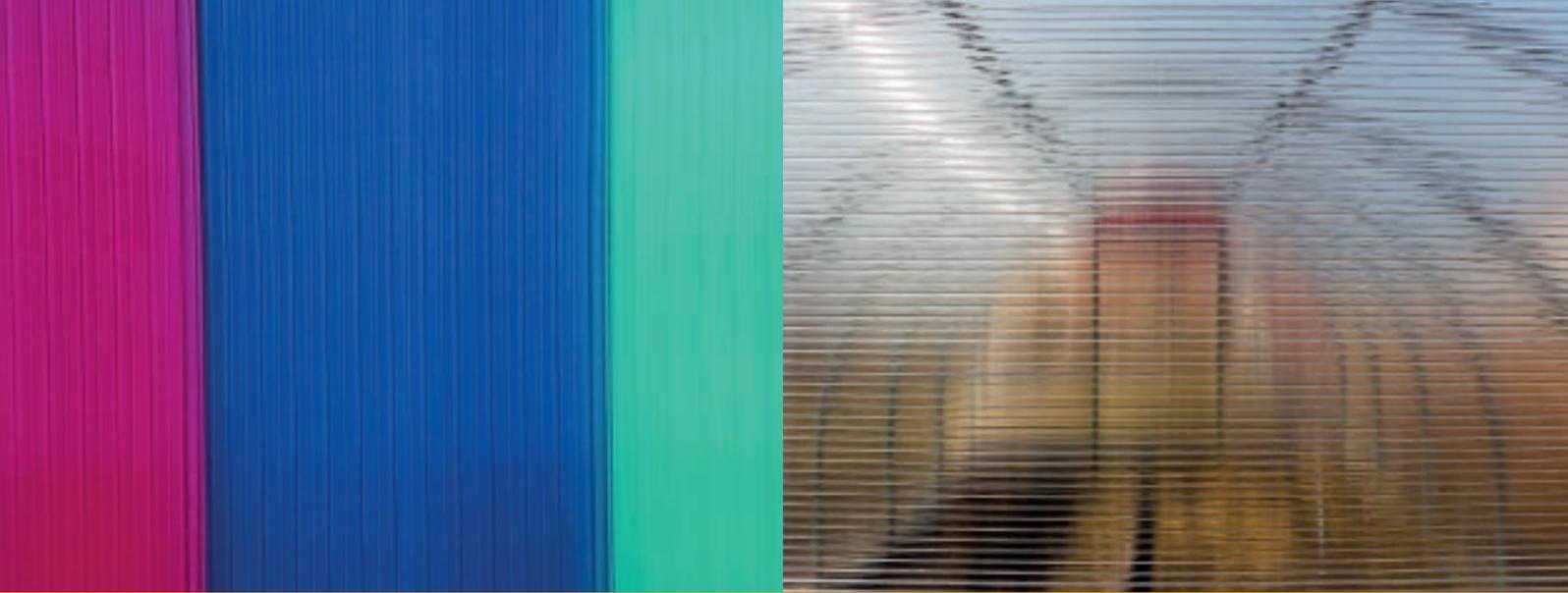
Riflex has developed a comprehensive range of screen films to meet demanding digital imaging. We offer high quality vinyl films for both front and rear projection screens.

#### Products for Decorations, Textile Manufacturing and Interior Design

Riflex offers films for textile lamination, printing and black-out application. Our films are widely used for shower and blackout curtains, table cloths and more. The PVC film can be formulated to meet the requirements of a wide range of fire regulations and specifications.

PVC is an incredibly formable and versatile material. Only the imagination sets the limits for what can be created with PVC! The inflatable sculptures "Luminarium" were created to stimulate visitors to a sense of wonder to the beauty of light and colour.

Visit the company's web site:  
[www.riflexfilm.com](http://www.riflexfilm.com)



## Sheets

### SHEETS

Sheets made of polycarbonate are used in the building and construction sector to improve design freedom and to expedite construction. Polycarbonate has a unique combination of properties, offering clarity, durability, safety, versatility, as well as heat and shatter resistance.

#### **Covestro**

Covestro is a leading supplier of polycarbonate resin and sheet that helps to meet the needs of architects, designers, project specifiers and facility owners.

Whether the project involves vertical or overhead glazing for translucent or transparent daylighting, our polycarbonate materials help designers to create shapes that would not be possible with glass. Applications include canopies, facades, security windows, shelters and skylights, to name just a few. Durable and attractive. Our polycarbonate has everything you need to make head-turning designs possible while still satisfying standards and codes. Creative construction projects, such as stadium and train station roof covers, complex dome structures, skylights and barrel vaults, or lightweight roof constructions for winter gardens are all possible with Makrolon®. In industrial applications, this material – with its extremely high impact resistance – is valued as a reliable solution for protective glazing and machine covers. In the field of visual communication, top-quality Makrolon® sheet can be used to manufacture attractive and durable illuminated signs.

Our Makrolon® brand stands for a versatile range of top-class solid (GP) and multiwall (multi) polycarbonate sheets that fulfill the most diverse requirements and possess an excellent combination of properties:

- Impact resistance and strength
- Excellent thermal stability
- Weatherability
- High transparency
- Abrasion resistance
- Cold formability

**Visit the company's web site:**

**[www.plastics.covestro.com/en/Applications/Construction.aspx](http://www.plastics.covestro.com/en/Applications/Construction.aspx)**



## Sandwich composite

### SANDWICH COMPOSITE MATERIALS

Sandwich technology and high performance core materials provide excellent solutions to create innovative façades and constructions in a cost-effective manner. Low weight, high strength, thermal and sound insulating properties together with non-corrosive features, make sandwich composites a sustainable and economic solution. The lightweight components also reduce the need for supporting points, and enable fast and cost-efficient onsite installation.

Domes, bridges, roofs, canopies, claddings and façades are just a few of the applications for which DIAB sandwich composite cores provide exceptional value. The ability to produce complex shapes as single structural components, including choice of surface material, gives architects and designers full creative freedom. With Diab wide range of core materials, kits and finishings everything is possible.

#### DIAB

Diab's high-performance solutions can take your products to a higher level of competitiveness by making them stronger, lighter and smarter. Combining advanced sandwich composite materials, tailored kits, a wide range of finishing options and a comprehensive range of engineering services, we make it possible for you to develop your wildest construction dreams in a cost-efficient and environmentally sustainable way.

Visit the company's web site:  
[www.diabgroup.com/en-GB/Markets/Construction](http://www.diabgroup.com/en-GB/Markets/Construction)



## Insulation

### INSULATION

Expanded Polystyrene, EPS, is a lightweight, rigid, plastic foam insulation material produced from solid beads of polystyrene. Expansion is achieved in a steamed process together with pentane, where the beads expand to approximately 40 times the volume of the original polystyrene bead. EPS can be recycled up to seven times.

EPS is 98% air and only 2% polystyrene. By using EPS insulation in houses the energy consumption can be reduced by up to 50%. This means lower energy costs for cooling in the summer and more warm feet thanks to lower heating costs in the winter, and overall a safe and healthy atmosphere at home. EPS is the smartest way of using resources. It is completely non-toxic, it has low CO<sub>2</sub> emissions, it helps save energy, and can be recycled up to seven times.

It also qualifies for keeping things safe and protected. It is the best practice for use in helmets and children's car seats. Because it is light and at the same time very strong. EPS is also the best packaging material for transporting sensitive goods such as medicine, fresh fruit, fresh fish, and even organs.

#### Sundolitt

Sundolitt has a wide range of insulation boards. The insulation boards are useful for all types of basic insulation. The boards fit perfectly as insulation of grounds, ground, ceiling, wall and road. The higher densities tolerate higher loads and are used where the ground is exposed to high pressure. For fire safety, EPS in buildings is always protected by a non-combustible material such as concrete, plaster or plasterboard.

Visit the company's web site:  
[www.sundolitt.se](http://www.sundolitt.se)



## High pressure laminate

### HIGH PRESSURE LAMINATE

High Pressure Laminate is manufactured through fusing multiple layers of impregnated paper under high pressure and temperature. The material can be used flat on vertical and horizontal surfaces and can be heated and formed to hold a curve. A colour palette of over 150 plain colours is offered in High Pressure Laminate. High Pressure Laminate is robust, hygienic, and offers countless design and application opportunities for a wide variety of environments

### Formica Group

Formica Group is a leading provider of branded, designed surfacing solutions for commercial and residential customers worldwide. As the world's largest manufacturer of High Pressure Laminate Formica works closely with architects, designers and developers. Formica offers new products and surfacing solutions that complement current design trends.

High Pressure Laminate can be used flat on vertical and horizontal surfaces and can be heated and formed to hold a curve. A colour palette of over 150 plain colours is offered in High Pressure Laminate. High Pressure Laminate is robust, hygienic, and offers countless design and application opportunities for a wide variety of environments. One of the latest exciting introductions to the Formica Group portfolio is VIVIX®, a solid phenolic, ventilated rainscreen façade application.

Visit the company's web site:  
[www.formica.com](http://www.formica.com)

