Sapa Building System AB is the leading supplier of aluminium building systems in Scandinavia.

Sapa Building System AB develop and market systems for doors, windows, facades, glazed roofs and solar shading. We control the entire chain from production of dies, extrusion of profiles, surface treatment, and insulation to stocking system profiles and accessories. We are ISO 9001 certified. Our products are manufactured by independent licensed fabricators. Their commitment can comprise from know-how, support and consulting to production, delivery, installation, and after sales service of the products.

Sapa Building System AB has been active on the market for over thirty years. Since then we have developed efficient products and extensive testing has also been carried out to relevant BS and EN test standards.

Our building system is adapted to the architectural entirety. Four combinable systems can be used to create a variety of applications and functions. With many years of experience in developing functional and architectural solutions Sapa offers a flexible building system with space for new ideas.

Our independent fabricators are trained on an ongoing basis to manufacture and supply our high performing systems.

Sapa AB is divided into three core business areas:
Profiles, Building System and Heat Transfer.
Sapa develops, manufactures and markets value added profiles, profile based building systems and heat exchanger strips in light weight aluminium and is the leading independent manufacturer in the world.

Sapa’s business concept is based on a close co-operation with its customers, who are mainly located in Europe, North America and Asia. Major customer segments include construction, transport, household, office and engineering industries.
External solar shading in glazed façades

Today’s architecture is dominated by glass and transparency. Glazed walls create a visual openness and give us the daylight, the sunshine and the view that we need. However, the interior climate and working environment are strongly influenced by the sunshine. The installation of external solar protection is a good way to keep light and heat at the right level.

The direct sunlight coming through a glazed façade results in strong contrasts, reflections and dazzling, thus deteriorating the working environment. The heat radiation often requires air conditioning in order to cool down office premises.

Basically, there are three ways of controlling the effect of glass façades on the interior climate:

• External solar protection
• Light and heat reducing glass
• Internal solar protection, such as Venetian blinds, textiles etc.

The most effective way to reduce direct sunlight and the need of cooling is the external solar shading.

To control contrast, reflection and dazzling it is often necessary to install added solar protection. The requirements depend, of course, on the type of activity inside the building.

There are many ways to design the external solar protection. Solar protection louvres can be installed in a continuous line or in clearly divided sections in order to obtain different visual effects. Fixed external solar protection is easier to control from the architectural point of view.

The solar protection solution used on the façade determines the architectural character of the entire building. Maintenance and evacuation issues require careful planning. The location and the orientation of the building, as well as the type of activity and the maintenance needs form the point of departure when planning an efficient solar protection system which will let the necessary daylight in.

In this issue of Forum, we present buildings where the solar protection on the façade has been solved in different ways. They illustrate how functionality and quality work together in modern architecture.
Varberg, Sweden

Peder Skrivare School

Sapa Building System Facts

Place: Varberg Proprietor: Varberg Municipality.
Architect: ABAKO Arkitektkontor AB Contractor Stage I: Tage och Söner i Varberg AB Stage II: Skanska Sverige AB Fabricator Stage I: Preconal Fasad AB Stage II: GlasLindberg Fasad AB

The architect’s description

Peder Skrivare School was built more than thirty years ago to provide space for an expanding upper secondary school and offer premises that were suited for the pedagogical needs of that time.

Recently, a reconstruction and expansion has taken place for the same reasons. The number of students in the school has increased and there is a need for a variety of rooms suited for different educational situations. The school is divided into three independent sections with approximately 600 students each.

Stage I

The detached buildings used for the vocational programmes have been connected by a new two-floor building, which enables the students and the teachers of the different programmes to co-operate and makes it possible to use the premises in a better way.

The new part has been built using modern brick building technique with a central glazed passage, along which the kitchen, the canteen, the café, the teacher’s rooms and the classrooms are located.

Stage II

After the reconstruction, the main building of Peder Skrivare School will comprise the rooms of section 1 and 2 for a total of approximately 1200 students.

The existing main building has been expanded with a new part which is located centrally in the school. On the entrance floor, there is the library that serves all sections of the school, while the upper floor provides space for classrooms.

The extension has the character of a pavilion with glazed facades with coloured glass elements in different shades of blue and green.

The reconstruction will provide the school with necessary classrooms of different sizes as well as places for the students’ individual and group work. Working rooms for the teachers have been organised in sections in connection to the school management, the assistants’ rooms and a common break room. There is a spacious café for the students which can also be used during events taking place in the assembly hall.

Stage II also included the reconstruction of two neighbouring buildings. The traffic solutions for persons arriving to the school by bus and by car will be improved within the project and the landscaping will be completely renewed.
Gothenburg, Sweden
Volvo Museum
Sapa Building System Facts

Facility: Volvo Museum  Construction year: 2007
Place: Gothenburg  Proprietor: AB Volvo and VCC
Architect: AKOS Arkitekter & Ingenjörer AB
Fabricator: Göteborgs Glasmästeri AB

Façades: SFB 4150 with decorative profile 68818
Doors: SFB 2074  Windows: SFB 1074, outward opening
Glazing: Pilkington Suncool Briljant 50/25
Surface finish: Powder coated, Akzo-Nobel Noir 100 sable

The architect’s description

Volvo Museum is situated in Arendal on the Hisingen island in Gothenburg and it was opened for visitors in 1995. The museum is run jointly by AB Volvo and Volvo Car Corporation and it presents the long history of Volvo from the very first car model, the ÖV4 to the current production models and concept vehicles. The exposition contains marine engines, buses, trucks, fighter aircraft, exhibitions about the founders of the company and much more.

Volvo Museum is open for the public daily except on Mondays.
The architect’s description

The point of departure for this project was that the customer, Upplands Motor, wanted to have a car showroom that would be unparalleled in Sweden.

The project started with an analysis of completely different proposals. In the end, the concept of a glazed car showroom was chosen with a maximally protruding roof and large boxes combined with solar protection louvres. For the bottom level, where the workshop is situated, dark granite was chosen in order to create a heavy base as a contrast for all the glass.

The showroom is located on a steeply slanting plot of land. Three parking lots at different heights with sedum overgrown slopes in between create dramatic spaces towards the west. Some 40 metres to the east from the building, there is the E4 motorway to Stockholm.

Another basic idea was to use few, but strong design elements in the façades. A combination of large boxes, glass and thick solar protection ouvres emphasises the size of the building. The gross area is about 16,800 square metres. The logistics inside the showroom and on the parking lots is of fundamental importance for the business and the architecture. Many studies have been performed of how the cars move within the facility.

Transparency and admission of light have been prioritised inside the building. The different car makes Volvo, Ford and Renault occupy their own, clearly separated parts of the building. The workshop and the reception on the bottom floor are equally well designed as the showrooms on the upper floor. The central part of the building is occupied by a high-roof café with lanterns.

Wester + Elsner Arkitekter i Stockholm
Sapa Building System Facts

Facility: Upplands Motor Akalla  Construction year: 2007
Place: Akalla, Stockholm  Proprietor: Upplands Motor i Stockholm AB
Architect: Wester+Elsner Arkitekter i Stockholm AB
Fabricator: GlasLindberg Fasad AB

Facade: SFB 4150 with decorative profile Add 42693  Solar protection: 4550 Box 190 mm  Surface finish of facade: Powder coated, Akzo-Nobel Gris 900 sable  Surface finish of solar protection: Powder coated, Akzo-Nobel Ivorie 100 sable  Glazing: SGG SKN 165 Diamant VK
Façade with Decorative profiles for the installation of guide rails for external Venetian blinds.

The solar protection creates strong design elements in the façade.
Solar Shading Box 190 installed in vertical carrying profiles which have been anchored in Add decorative profiles on the façade.
Sapa Building System at the Nordbygg Fair 2008.

Designed product solutions arose great interest.
Sapa Façade with energy efficient solutions

In order for the fair visitors to be able to get a comprehensive idea of our way of thinking of energy efficiency, we illustrated this with a façade model containing several examples of interesting solutions.

Sapa 4150 façade system consists of 50 mm wide insulated aluminium profiles. The profiles, which are joined together with hidden joints, are designed so as to ensure stability under the dimensioning loads. The surface finish alternatives include anodising and powder coating. By using the right glazing units and infill panels it is possible to optimise the $U_g$ value in the entire façade.

1. Solar cell panels are a good way of making the façade generate electricity and provide the building with some valuable energy. The 4150 façade system has a rebate which makes it possible to use different types of solar cell panels.
2. Outward opening 4074 windows with a rebate for double glazing units. Double glazing units with a warm edge and energy saving glass make it possible to reduce the $U_g$ value to 0.9 W/m²K.
3. Sapa Vaku Panel is one of our infill panel systems with several surface layers. Glass and aluminium sheet are examples of commonly used surface layers. Vaku Panel can reduce the $U_g$ value as much as 0.17 W/m²K. The panels are installed in the glass rebate of the system.
4. The system, which is suitable for both fixed and opening windows, has a rebate for double and triple glazing units. Triple glazing units with a warm edge and energy saving glass make it possible to reduce the $U_g$ value to 0.4 W/m²K.
5. External solar protection on the glass façade results in improved interior climate by reducing the cooling needs and at the same time still gives us the good view and the daylight that we need. Sapa Solar Shading, solar protection made of aluminium, is available with three louvre types: Bow, Wing and Box. This gives the architect a lot of freedom when it comes to the choice of the form and the functions. Most of the solar protection elements can be installed both vertically and horizontally.

Even more efficient
The next generation of our façade system, 4150 SX, will be launched on the market shortly. The new version has a newly developed insulating strip which improves the energy efficiency even more.
Sapa E-frame

for integrated electronic circuits

The Sapa door frame for integrated electronic circuits has a service cover for a digital access control system. The construction makes it easy to install an entry phone, a camera, an electric motor lock and an automatic door opening device. Hidden hinges, wiring and mounting elements enhance the designer's possibilities of carrying new ideas into effect. Service and maintenance are made easier thanks to the service cover, the hidden wiring and the replaceable break-out protection and rebate profiles.

Sapa 1074 SX

windows with low U value

Our new 1074 SX window system with optimised insulation made of glass fibre reinforced polyamide strips between the aluminium profiles and a rebate for triple glazing units reduces the $U_v$ value to 0.9 W/m²K. The aluminium structure guarantees a good form stability, a long service life and minimum maintenance needs.

The windows can be fitted with multi-function glazing units with improved noise reduction ability, dirt repellent properties, anti-burglar protection, and more. When fitted with anti-burglar fittings and glass, the window meets the requirements for class 2 according to SS-ENV 1627.
Sapa Structural Glazing

with $U_g$ value reduced to 0.9 W/m²K

In our 4150 SSG system we offer the lowest $U_g$ value on the market (as low as 0.9 W/m²K) for a structural glazing system with double glazing units and a TPS type VK distance profile which guarantees gas tightness.

The system is based on glazing units with a warm edge and a newly developed installation profile in the glazing unit. The glass panes are anchored in the framework profiles with the help of installation fittings. The outside sealing between the glass panes is done with the use of a sealing compound (usually black) approved for the structure. Structural Glazing gives the façade a smooth surface. The façade system is based on the 4150 system and consists of 50 mm wide insulated aluminium profiles. The design of the inside gasket and the insulating strip optimises the insulation of the profiles. The profiles are designed so as to ensure stability under the dimensioning loads and are joined together with hidden joints.
Denmark

Ringstedet Shopping Centre

Sapa Building System Facts
Place: Ringsted  Proprietor: Kay Wilhelmsen Entreprise ApS
Contractor: Myhlenberg A/S  Fabricator: AP Facader A/S

Facade: SFB 4150  Roof: SFB 5050  Windows: SFB 1074  Doors: SFB 2074
Surface finish: Pulverlak RAL 9010 / RAL 9005 glans 30
The architect’s description

Our vision with Ringstedet was to build an inviting and timeless centre.

Since Ringsted is called “the red town” and the local authorities required red brick walls, we selected simple red monk bricks in order to break the large areas.

Next to the north entrance, we decided to install the escape stairs on the outside of the building in order to break the very long façade and to use small eaves for the same purpose. On the parking lot, the portal wall is covered with black tiles and the overhanging eaves continues in through the façade.

The choice of materials is very conscious, the eaves are made of patinated zinc, the façade profiles are painted in black, the foundation of the arcade is made of grey concrete tiles and the wall surfaces are white.

All colours are kept in grey, black and white shades – simple, raw and rustic architecture of our time.

A lot of work has been dedicated to the arcade – visible pipes could not be accepted.

The engineers have solved their task well and we have obtained large, smooth surfaces with visible steel structure elements and an escape bridge that have been painted black for contrast. The glazed lift and the moving walkway are also black.

The architect, Lars Strande Rasmussen, has followed the construction work closely and in co-operation with the contractor we have been able to fulfil our visions and requirements.

The 16,000 square metres centre has been built in only 13 months. It was a special requirement and we performed the design tasks at the same time as the construction work continued.

Karsten Solgård
Båstad, Sweden

Hotel Skansen and Båstad Tennis Stadium

Sapa Building System Facts.

Facility: Hotel Skansen and Båstad Tennis Stadium  Construction year: 2000-2007
Place: Båstad  Proprietor: Båstadtennis och Hotell AB  Contractor: Peab Sverige AB
Architect: Tengbom Michelsen Helsingborg  Fabricator: GlasLindberg Fasad AB.

Doors: SFB 2074, 2060, fire rating E 30  Surface finish: Powder coated, Akzo-Nobel Noir 1000 sable
The architect's description

The project was started in spring 1999 with the first drawings of Hotel Skansen and the Tennis Stadium in Båstad. Today, eight years later, the last touches are being put on the reconstructed arena where Catella Swedish Open takes place every summer. The first stage, including the Sand Restaurant, the big Lake Stand by the centre court, and hotel rooms, conference facilities and spa for Hotel Skansen, was completed in the summer of 2001. Three years later, more hotel rooms and conference facilities were finished in the Tennis Pavilion. By the summer of 2005, the third stage – the TV tower with offices and media rooms – was completed and the work on the current stage – the Country Stand – was commenced.

The Country Stand project includes several functions for both the hotel and the tennis activities. A number of rooms, suites and studios has been built for Hotel Skansen, some in the big building, the Congress House, and some in eleven smaller buildings in the south and west part of the premises. Apart from this, the hotel has got a large garage which can also be used for both exhibitions and parties, as well as a congress hall and a number of conference rooms. For tennis events, new stands were built on three sides of the centre court, first of all, the big Country Stand which also makes the roof of the Congress House. Moreover, new Court 1 with stands has been built, as well as a service building with toilets, changing rooms and offices.

Tengbom Michelsen Helsingborg
Örnsköldsvik, Sweden

Office building with glazed spaces
Sapa Building System Facts.

Facility: Part of the Handformaren 2 block
Proprietor: Nybergs Måleri AB.
Architect: Sweco FFNS Arkitekter AB, Örnsköldsvik
Fabricator: Alab Aluminiumsystem AB


The architect's description

Today, we can observe an increased competition awareness among the Swedish real property administrators, who want to make both new and existing properties attractive for their tenants. The Handformaren block, situated along Sjögatan street in Örnsköldsvik, is a good example of an extensive reconstruction project.

The task in this project was to create possibility and space for modern and functional office premises with good aesthetics. The building, which had a dark middle core part previously, has been provided with two large glass-roofed light wells with offices, personnel and conference rooms. The building has got a light colour scale and has been finished with high quality materials, while effective logistic solutions have been applied on the floors. Apart from the shell of the building, most construction elements have been replaced with new ones.

One purpose of all these efforts has been to emphasise the value of good administration resulting in improved comfort for the tenants. The companies MacGregor and Ö-viks Energi who are tenants in the Handformaren block are two good examples of this.
Norway
Quality Hotel

The architect's description

The project is the result of an architectural competition which took place in the summer of 2004.

The architectural design is simple and wide open. With the strong maritime traditions of the Ulstein municipality and the adjoining shipyard areas in the seashore zone, the facility blends naturally into the structure of the town centre. At the same time, the simplicity of the building provides the quietness which is necessary to create a new visual central point in the centre.

The project has an exciting combination of rooms based to a great extent on joint use. The facility has 90 hotel rooms, a culture hall 500 seats and a cinema for 120 persons, as well as accompanying course and conference rooms.

The new building is oriented towards a small lagoon which provides space for guest and charter boats. This move has made it possible to bind the lobby with the seafront to the advantage of the public environment, and at the same time the facility has got a unique identity and a very special atmosphere.

Strong emphasis has been put on the choice of exterior materials. The massive parts of the building is covered with patinated copper, while oak laths are used on parapet walls and in balustrades. The beautiful surroundings are admitted into the building through the big glazed surfaces.

Ivar Aamlid, Slyngstad Aamlid Arkitekter AS
Sapa Building System Facts

Facility: Quality Hotel  Construction year: 2007
Place: Ulsteinvik Proprietor: Ulstein Hotel KS
Architect: Slyngstad Aamlid Arkitekter AS
Fabricator: H-Produkter AS

Façades: SFB 4150 with decorative profile
Solar protection: SFB 4550 Wing 300 mm  Windows: 1074
Doors: SFB 2074  Surface finish: Powder coated, Noir 200 Sablé
Glazing: SGG Cool Lite SKN 154
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