



aperam
made for life

Our stainless steel
facade offer

performan



Aperam is a global stainless steel player offering a multitude of effective, innovative and environmentally friendly stainless steel solutions, tailored to meet our customer expectations.

Aperam stainless: a different choice.

We **anticipate** end-users' new requirements and we **support** every customer, from technical assistance to product co-development, thanks to our global presence.

We offer **the most comprehensive and innovative range** of stainless steel solutions in the market in order to satisfy the wide variety of expectations: A stainless solution tailor-made for each customer.

We enjoy **recognised and long-standing** expertise among the players in the construction sector, including project managers, developers, architects and main contractors.



Professional training centre SSIC,
Gordola - Switzerland
Durisch + Nolli Architetti Sagl, BSA/SIA/ETH
© Aperam
Executed using grade 304 with UGIBAT finish

On cover
Bodega Irius, Barbastro, Huesca - Spain
J. Marino Pascual y Asoc. Arquitectura
© Adriana Landaluce
Executed using grade 316L with UGITOP finish

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Stainless steel, the material for sustainable development

Stainless steel is the "green material" par excellence and is infinitely recyclable. Within the construction sector, its actual recovery rate is close to 100%. It is environmentally neutral and inert when in contact with elements such as water, it does not leach compounds that might modify their composition.

These qualities make it a material which is ideally suited to building applications exposed to adverse weather: roofs, facades, rainwater recovery systems and domestic water pipes. Stainless steel's longevity fulfils the requirements of sustainable construction: effective selection, installation and low maintenance guarantee the user unrivalled service life.

Stainless steel, a combination of performance and aesthetics for your projects

Conception

Our stainless steels provide a wide use for all kinds of facade work. Stainless steel has excellent mechanical properties and is resistant to corrosion and fire. Our large range of thicknesses and finishes offers numerous possibilities for architects to express their creativity.

Economical performance

Conception and construction with stainless steel guarantees excellent cost effectiveness. Price stability, notably ferritic grades, as well as comparable transformation costs with other metals traditionally used for facades, give stainless steel its competitiveness.

Aesthetics

Stainless steel permits a freedom of creativity and architectural design second to none. Our stainless steels enable the achievement of complex forms and combine well with other materials such as glass, wood, stone.

Our solutions offer you a wide selection of surface finishes for facade: UGIBRIGHT, UGIBAT, UGITOP, UGISAND, UGILINE, UGITEX, UGINOX TT3, UGINOX TT4, UGINOX TT5, UGINOX TG5, MECA 8 ND as well as the possibility to choose from a range of colours.

Service

Over and above the facade product offer described in this brochure, it is the way in which we support you throughout your projects that differentiates us from other producers.

Technical Partnership

From the purchase decision to the execution of your projects, our **technical expertise** is at your disposal.

Because the quality of your products depends on the use to which you put them, the exposure and environment to which they are subjected, and the potential that you wish to exploit, our engineers provide advice to developers, project managers and contractors.

Our **"Stainless Workshops"** – operational workshops located at our Isbergues site – can train your colleagues and operatives in the use of stainless steel. Our experts in various European countries provide training in schools of architecture and design, in high schools and vocational schools specialising in building.

Product Innovation

Stainless Europe has a highly competent research centre dedicated to Stainless steel, but can also call upon the services of all Aperam research facilities. We are working in conjunction with material manufacturers to enhance the performance of our stainless steels by combining them with other materials, such as glass.

Logistic offer

Our dedicated European logistics platform located in Isbergues ensures a service level adapted to your requirements.

Our stainless steel range for facade is available from stock, in standard formats, to order and made to measure products.

A team of logistic experts dedicated to quality of service and on time delivery is at your disposal.

Proximity to our Customer

Stainless Europe also has the advantage of its sales network – 16 Service Centres and sales offices throughout Europe, which offer a quality service and proximity to those involved in the construction sector.

You will find the relevant contact information on the back cover.

What is stainless steel ?

Steel is an alloy of iron and carbon.

Stainless steels are steels containing less than 1.2% carbon and at least 10.5% chromium, and other alloying elements.

The chromium content provides stainless steel with its corrosion resistance, enabling the natural and continuous development of a chromium oxide surface layer.

This oxide, referred to as the “passivation layer”, provides it with lasting protection against all types of corrosion. This passivation layer is naturally self-healing when in contact with humidity or water.

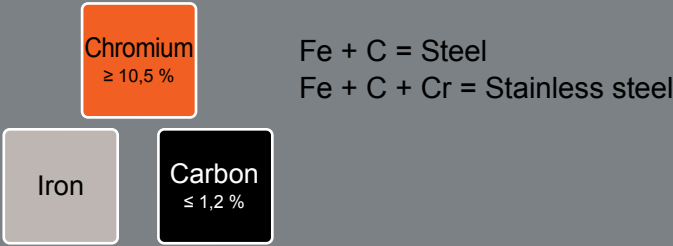
Stainless steels’ corrosion resistance and mechanical properties can be further enhanced by the addition of other elements such as nickel, molybdenum, titanium, niobium, manganese, etc.



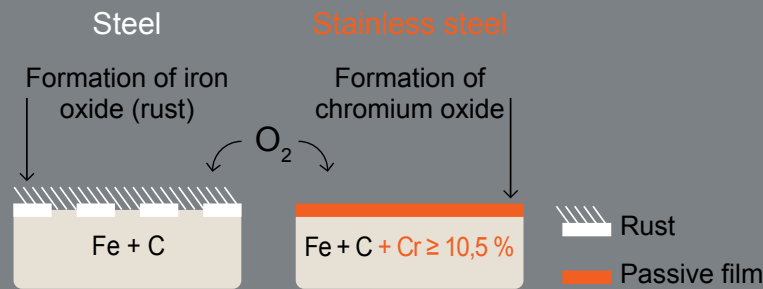
KARA is the Aperam brand for ferritic stainless steels. Unlike other stainless steels, the KARA range does not contain nickel and is thus immune from the erratic price fluctuations of this alloying element.

Prices are more stable over time: a strong argument in the construction sector, where project costing and economic design are key elements.

Compositions of stainless steel



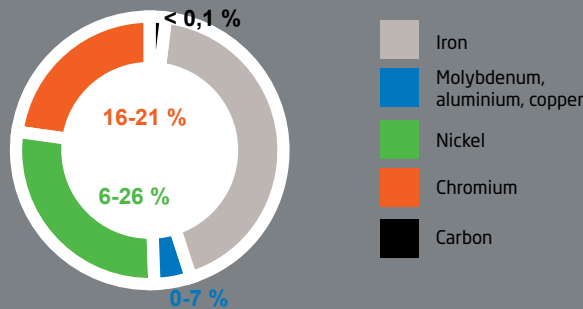
Reaction of steel and stainless steel in contact with air humidity or water



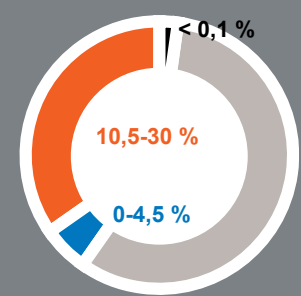
The various categories of stainless steel suitable for facade

The stainless steels that are traditionally used for facade can be grouped into three major categories.

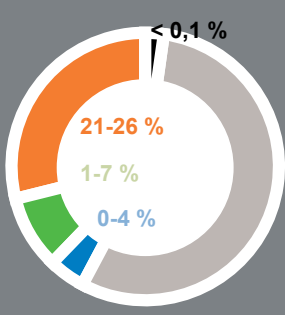
Austenitic S300



Ferritic S400: our KARA ferritic stainless steel solutions



Duplex



select offer



An extensive choice of surface finishes

In order to meet the needs of all styles of architecture, we offer you a comprehensive range of surface finishes, from matt to bright, which can be achieved on various grades of stainless steels. All that is required is to identify the grade of stainless steel and the surface finish.

A grade of stainless steel

Corresponds to a steel product characterised by its chemical composition. This composition has a direct influence on its resistance to corrosion and its mechanical properties.

Surface finishes

They are the result of mechanical or physico-chemical treatment of the surface of the steel.

Surface finishes can be reproduced on different grades of stainless steel.



UGITOP

Matt finish.
Available in 304 and 316L
Thickness: from 0.4 to 3 mm



UGIBRIGHT

Particularly bright and uniform surface with low roughness.
Available in K36* / 304 / 316L
Thickness: from 0.5 to 1.5 mm



UGISAND

Sand blasted finish.
Please consult us



UGIBAT

Slightly bright surface with low roughness.
Available in 304 and 316L,
Thickness: from 0.5 to 2 mm
Available in DX2205 and DX2304
Thickness: consult us



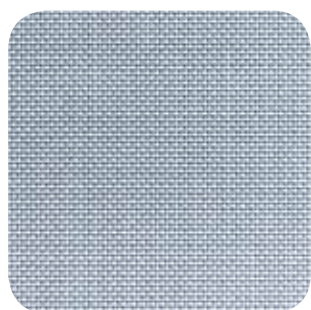
UGILINE

The fine polished look with the qualities of a rolled-on finish.
Available in K36* / 304 / 316L
Thickness: from 0.4 to 1.5 mm



UGITEX

Fine bead blasted finish.
Available in 304 and 316L
Thickness: from 0.7 to 1.5 mm



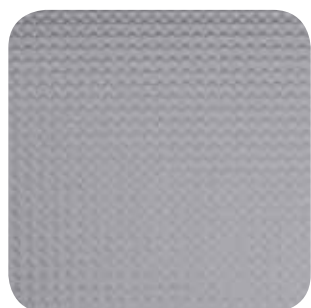
UGINOX TT3

The linen patterned finish.
 Available in 304 and 316L
 Thickness: from 0.5 to 2 mm



UGINOX TG5

Leather look pattern.
 Available in K36 / 304 / 316L
 Thickness: from 0.6 to 2 mm



UGINOX TT5

The lozenge pattern finish.
 Available in 304 and 316L
 Thickness: from 0.6 to 2 mm



MECA 8 ND

Non directional, super mirror
 polished finish.
 Available in K36 / 304 / 316L
 Thickness: from 0.5 to 8 mm



UGINOX TT4

Chequer pattern finish.
 Available in 304 and 316L
 Thickness: from 0.6 to 2 mm

Our recommendation

It is important that the choice of surface finish be compatible with the environment. An identical grade, with low roughness, like UGIBRIGHT and UGIBAT, are finishes most resistant to corrosion because contaminants cannot easily attach themselves and are "self cleaning". Our finishes are uniform and can be reproduced, especially those achieved by etching.

colours

The colour does not alter the properties of the chosen finish and presents a resistance to ageing, ultraviolet light, as well as corrosion. It is possible to bend, fold or even carry out light stamping.

College Albert Debeyre, Beuvry - France
Parallèle 3 Architects
© Aperam
Executed using grade 304 with Inox Spectral® Gold finish





College Albert Debeyre, Beuvry - France
Parallèle 3 Architects
© Aperam
Executed using grade 304 with Inox Spectral® Gold finish

Inox-spectral® colouring process

This colouring process involves several chemical and electrochemical phases during which an extremely fine layer of transparent chromium oxide is deposited on the surface of stainless steel.

The grades 304 and 316L can be used as a base for this colour range.



GOLD

Available in 304 and 316L
Thickness : from 0.5 to 3 mm
Sheets : 2000 x 6000 mm



BRONZE

Available in 304 and 316L
Thickness : from 0.5 to 3 mm
Sheets : 2000 x 6000 mm



CHAMPAGNE

Available in 304 and 316L
Thickness : from 0.5 to 3 mm
Sheets : 2000 x 6000 mm



BLACK

Available in 304 and 316L
Thickness : from 0.5 to 3 mm
Sheets: 2000 x 6000 mm



BLUE

Available in 304 and 316L
Thickness : from 0.5 to 3 mm
Sheets: 2000 x 6000 mm



COBALT BLUE

Available in 304 and 316L
Thickness : from 0.5 to 3 mm
Sheets: 2000 x 6000 mm



Congress centre, Interlaken - Switzerland
Architects: ARGE, Dorenbach, Kunz und Möschi
© Aperam
Executed using grade 304 with UGIBRIGHT finish

Reference table

The table below provides general information on our facade offer.
To confirm your choice or for help and advice, please do not hesitate to contact one of our experts.

Commercial designations		Standards			Chemical compositions (typical values)						
		ASTM		EN							
		Designations									
		TYPE	UNS		C	Si	Mn	Cr	Mo	Ni	Others
Austenitics	304	304	S30400	1.4301	0.05	0.40	1.10	18.15		8.05	
	316L	316L	S31603	1.4404	0.02	0.40	1.25	16.70	2.05	10.05	
Ferritic	K36 ⁽¹⁾	436	S43600	1.4526	0.02	0.40	0.25	17.50	1.25		Nb = 0.50
Duplex	DX2205	2205	S32205	1.4462	0.02	0.30	1.80	22.80	3.10	5.5	N = 0.17
	DX2304	2304	S32304	1.4362	0.02	0.40	1.50	23.00	0.50	4.90	N = 0.1

(1) Please consult us for recommendations of use

- For each of the required finishes, the grade availability can be different:
- > UGITOP, UGINOX TG5, UGISAND, UGITEX, UGINOX TT3, UGINOX TT4 and UGINOX TT5 are available in grades 304 and 316L
 - > UGIBRIGHT and UGILINE are available in grades 304, 316L and K36.
 - > UGIBAT is available in grades 304, 316L, DX2205 and DX2304.



Hospital Jean Mermoz, Lyon - France
Jourda architectes - © Studio Erick Saillet
Executed using grade 304 with UGITOP finish



RPCZ, Kissingen, Zeeland – Netherlands
Alliantie De Putter Van Bebbber Minnen BV Architects - © Ridder
Executed using grade 316L with UGITOP finish



Selection criteria for stainless steels

Grade selector depending on atmospheric exposure

The choice of stainless steel grade for a facade application must take into account the environment in which the material will be used. Our experts are available to help you in the selection process.

Commercial designations		Standards			Internal environment		External environment					
		ASTM		EN	Benign, all levels of relative humidity	Corrosive*	Unpolluted rural	Urban and industrial		Marine		
		Designations						Normal	Severe*	20 to 10 km	10 to 3 km	Coastal (<3 km)
		TYPE	UNS									
Austénitiques	304	304	S30400	1.4301	✓	▲	✓	✓	▲	✓	✗	✗
	316L	316L	S31603	1.4404	✓	▲	✓	✓	▲	✓	▲	▲
Ferritique	K36 ⁽¹⁾	436	S43600	1.4526	✓	▲	✓	✓	▲	✓	✗	✗
Duplex	DX2205	2205	S32205	1.4462	✓	✓	✓	✓	✓	✓	✓	✓
	DX2304	2304	S32304	1.4362	✓	▲	✓	✓	▲	✓	✓	▲

✓ : Type suited to the environment ▲ : Type whose selection will be determined after consulting us ✗ : Type not suited to the environment

*In particular, any environment or atmosphere containing corrosive substances or halogens: chlorides, fluorides, etc.

Cleaning Advice

To assure the longevity of the building, we recommend respecting the usual cleaning operations. In practice, there are three types of cleaning operation:

Before reception on site

The elements in stainless steel are generally protected by adhesive plastic. After taking off the film (imperatively in the 6 months which follow the application of the coating), a simple cleaning with soapy water is sufficient. In the case of dirt (plaster, cement, glue...) cleaning must be done with appropriate products.

Regular maintenance

Maintenance is done with normal soap products, not bleach (soap powder, liquid detergent, soap) using a sponge. This operation is followed by abundant rinsing with water. To dry, it is good practice to use a rubber squeegee used for windows. This avoids streaking as when dried with a cloth. A simple principal consists of cleaning glassed and stainless steel surfaces at the same time.

Renovation

In the case of graffiti, tags or neglected maintenance, a simple cleaning with soapy products can prove insufficient to give the surfaces their original look. It is however possible to obtain good results using specific cleaning products. A final rinse is always necessary. For more information, please consult us.

Stainless steel, the facade material of choice

This table compares the characteristics of the principle materials used in facade, and guides your selection, taking into account your constraints.

Properties (typical values)	304	316L	K36	DX2205	DX2304	Zinc Cu - Ti ⁽¹⁾	Cuivre DHP Cu-b1 1/4 dur ⁽¹⁾	Aluminium EN AW 5005 ⁽¹⁾	Acier Carbone 1.0242 ⁽¹⁾
Density	7.9	8	7.7	7.8	7.8	7.18	8.93	2.7	7.7
Expansion in mm/m per 100 °C	1.75	1.6	1.17	1.3	1.3	2.2	1.68	2.35	1.2
Melting point in °C	1450	1440	1480	1460	1465	418	1083	660	1600
Modulus of elasticity in MPa x 10 (20 °C)	200	200	220	200	200	80	120	69	210
Yield strength in MPa	320	340	370	620	550	110/150	190	45	250
Tensile strength in MPa	670	620	520	840	730	150/190	260	120	330
Thermal conductivity in W/m.K	15	15	30	16	17	110	328	201	30
Mean elongation in %	50	48	29	29	30	40	25	27	19

(1) Reference of a type of zinc, copper, aluminium or carbon steel, traditionally used in facade. These values are only an indication.





Professional training centre SSIC,
Gordola - Switzerland
Durisch + Nolli Architetti Sagl, BSA/SIA/ETH
© Aperam
Executed using grade 304 with UGIBAT finish

Our solutions for facade construction systems

Stainless steel facade cladding is adapted to the demands of specifiers, where continuity of surface coverage is permitted.

The advantages of stainless steel

- > Lighter envelope thanks to high mechanical properties which permit a reduction of thickness.
- > Compatible with all support types: masonry, metal, wood, concrete ...
- > Possible association with construction systems giving thermal properties and/or acoustics.
- > Response to national and European thermal regulatory requirements.
- > Cost effective in comparison with products and techniques typically used.
- > All types of claddings are possible both new and refurbished.
- > In refurbishment, the stainless steel envelope transforms and modernises the building while respecting thermal regulations in use and omitting thermal bridges.
- > Better resistance to creep in comparison with other materials typically used.



Hotel ME, Barcelone - Spain
Dominique Perrault Architecture
© Vincent Filion
Executed using grades 316L and 304L with UGIBRIGHT finish



Hotel City Garden, Zoug - Switzerland
EM2N Architekten AG/ Ghisleni Planen Bauen GmbH
© MZ-IMMOBILIEN AG
Executed using grade 304 with MECA 8 ND finish



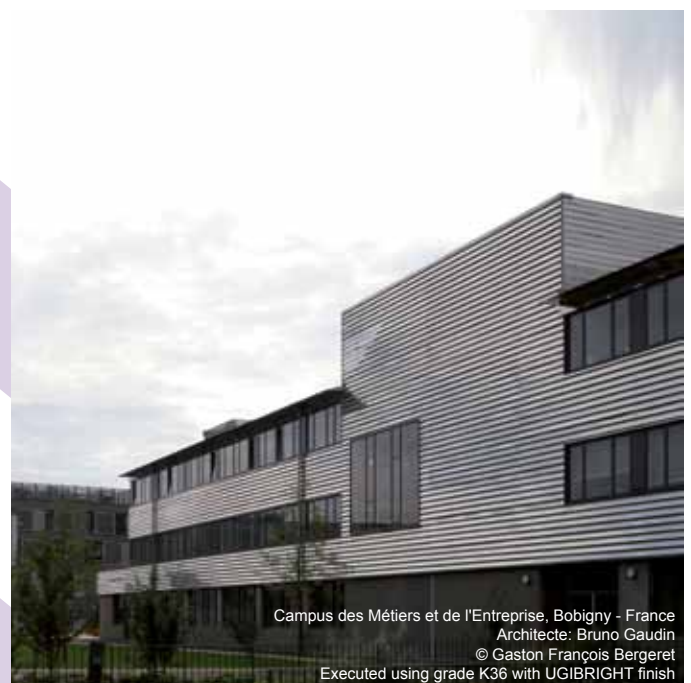
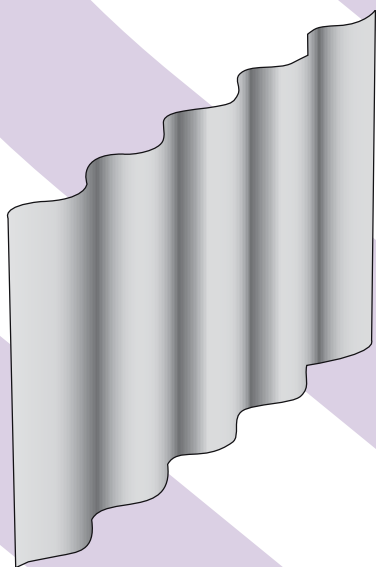
Sinusoidal corrugated profile

Profiling is a continuous forming process, starting from coil to obtain products with a regular section, called a profiled panel. During the industrial process, the coil is guided by rollers which provide both the shape and the angle. They are often used for large industrial as well as for commercial buildings. These profiles have a utilisable width of 1000mm and a typical thicknesses of 0.6 and 0.8 mm. There is no maximum length, beyond that of transport /handling constraints.

Strengths

- > Products available in large lengths.
- > Competitive square metre price.

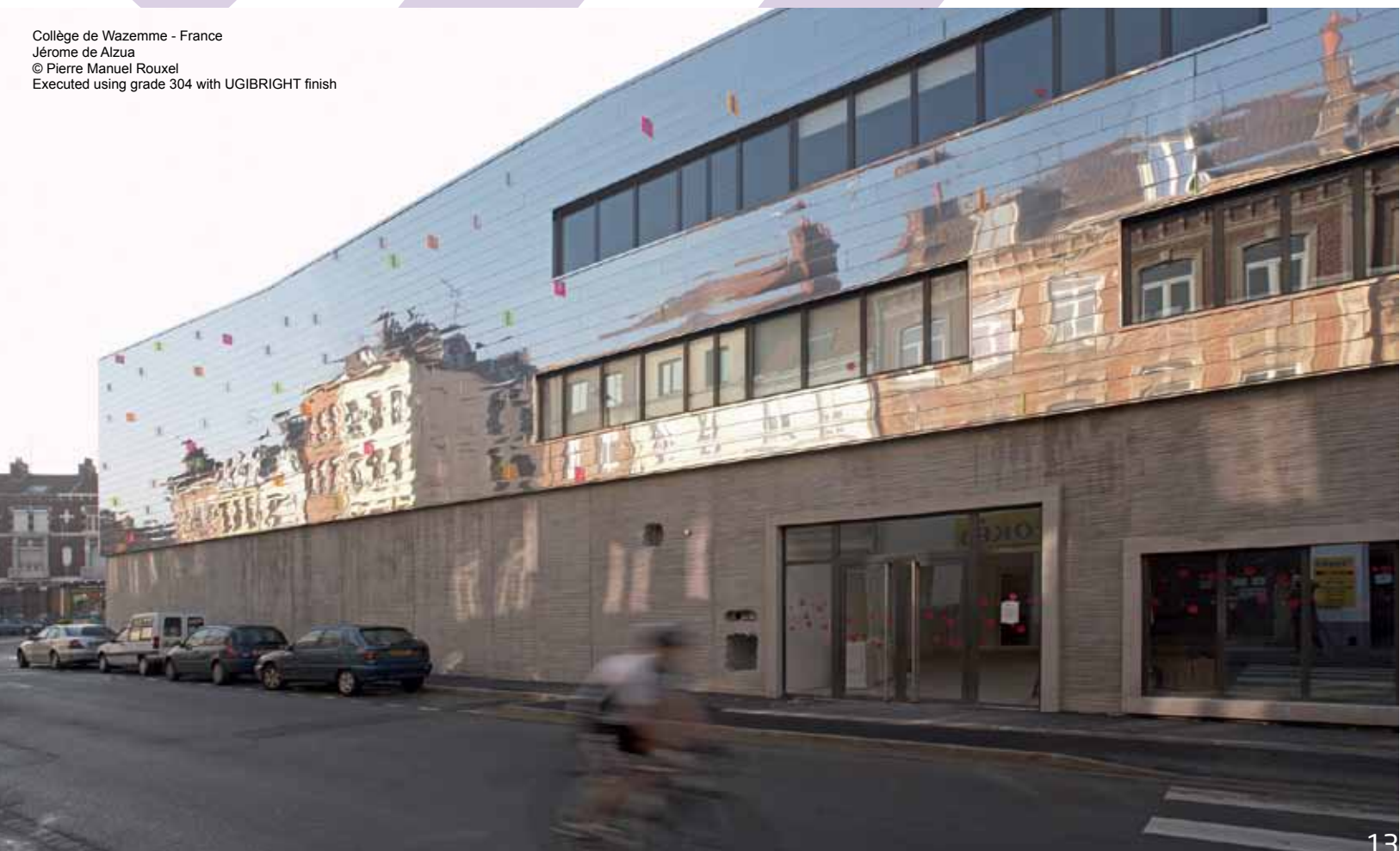
Example of sinusoidal corrugated profile



All facade grades in matt or bright, coloured or structured are technically available. Fixings must be in stainless steel for corrosion resistance reasons.



Collège de Wazemmes - France
Jérôme de Alzua
© Pierre Manuel Rouxel
Executed using grade 304 with UGIBRIGHT finish





Trapezoidal corrugated profile

Trapezoidal corrugated profile offers the same advantages as profiled rib cladding. However a wider architectural range is possible due to both the type and form of the profile. Perforated panels are also possible. Note that folded profiles give greater rigidity to the building envelope.

Length is determined as a function of the tray folder used, generally not exceeding 6 metres.

These joints, folded on both sides, can be fixed horizontally or vertically, with a single or a double skin and are installed with interlocking joints (male and female) or clips. They are often used for large, industrial buildings to give more originality to large coverage areas.

Strengths

- > This type of siding adapts to all constraints of length and width.
- > Ease of replacement in case of deterioration.

Example of Trapezoidal corrugated profile



Fixings must be in stainless steel for reasons of corrosion resistance. In the case of horizontal fixings, it is advised to use a greater thickness 0.8mm instead of 0.6mm for vertical fixing.



Archives Départementales du Bas Rhin
Strasbourg – France
Bernard Ropa & TOA
© Bernard Ropa
Executed using grades 304/316L
with MECA 8 ND, UGITOP and UGILINE finishes

Crèche « Le jardin des poupies », Nantes - France
Agence TOPOS
© Stéphane Chalmeau
Executed using grade 304 with UGIBRIGHT finish





Cassettes

Contrary to trapazoidal corrugated profile, cassettes are folded on all 4 sides. Installed vertically or horizontally, they can be taken down piece by piece during maintenance. They can be square or rectangular, flat or curved, perforated or stamped and in all cases present a refined finish. They offer the benefit of a tailored fit. Length doesn't generally exceed 6 metres due to the capacity of the folding tools. Width availability can vary.

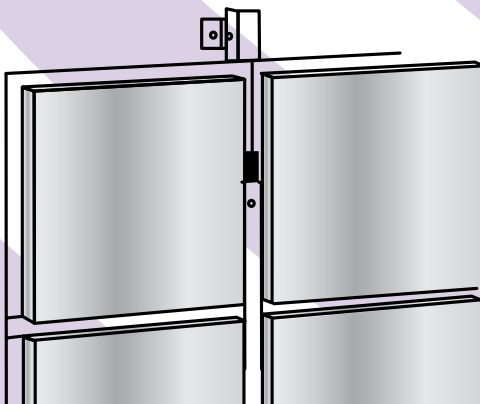
Different fixing systems exist:

- > Interlocking.
- > Fixing.
- > Mechanical fittings, visible or non visible.

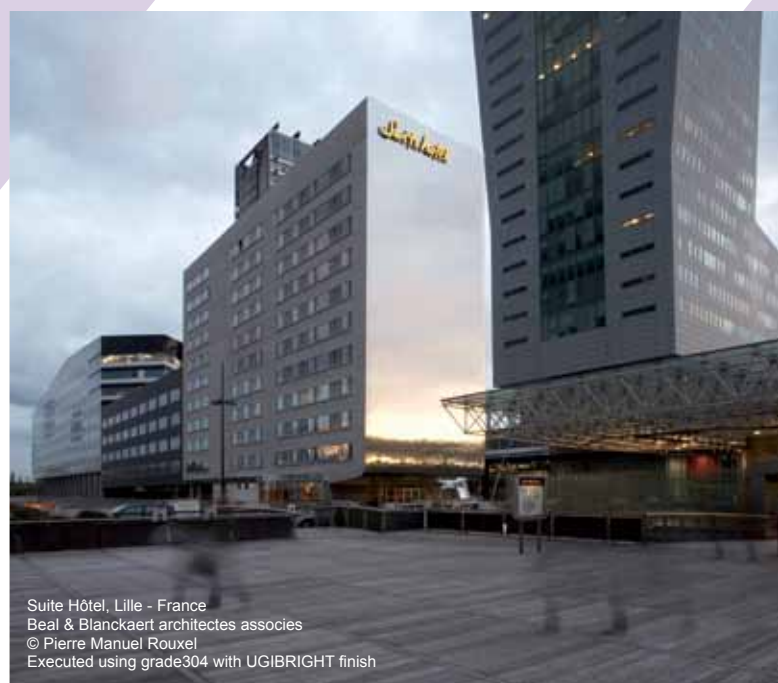
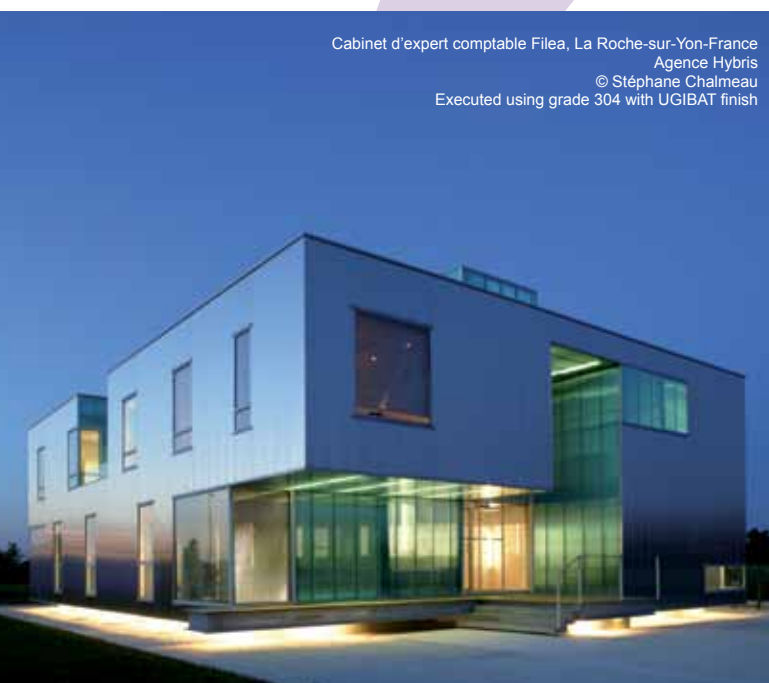
Strengths

- > Good flatness- different forms possible: tailor made solutions.
- > Dimensions adapted to technical restraints and fixing details on site.
- > Ease of replacement in case of deterioration of single elements.

Examples of cassette mounting



To obtain perfect flatness, it is possible to adapt the thickness to the dimensions of the elements or re-enforce them. Patterns can be obtained by stamping.





Solar shade

Brise soleil are more and more used for aesthetic purposes and their contribution to light filtration.

They can be fixed or louvred blades in vertical, horizontal and even oblique positions. They integrate perfectly into each architectural project and contribute to temperature control (comfort in summer)

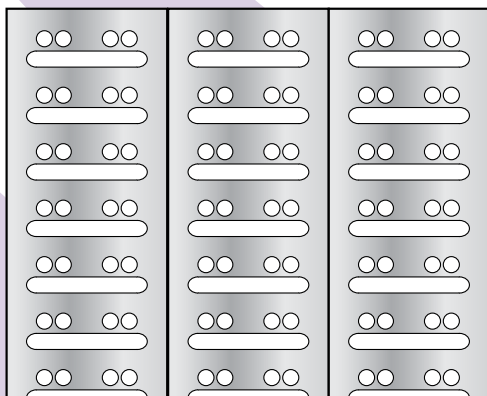
Different fixing systems exist:

- > Interlocking.
- > Fixing.
- > Mechanical fixings, visible or non visible.

Strengths

- > Possibility to use thinner thickness on long lengths thanks to the high mechanical characteristics of stainless steel.
- > Easily removed in case replacement is required.

Examples of a solar shade



To obtain perfect flatness, it is possible to adapt the thickness to the dimensions of the elements or re-enforce them.





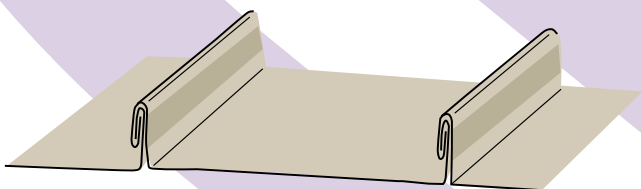
Standing-seam cladding

This type of cladding, used for traditional covering is defined by its linear lines and meets all architectural demands. Assembled on site or off-site in a workshop using strips of stainless steel, these systems are joined together and fixed onto a single, rigid, wooden substrate along their length by folding the pre-formed edges. The folding and closure of the seam is done in a conventional manner using specific tools.

Strengths

- > Aesthetic quality.
- > Possibility of long lengths (up to 20m according to technical restraints).
- > Possibility to have parity between the roof covering and the facade.

Example of a standing-seam



Fixings must be in stainless steel for reasons of corrosion.





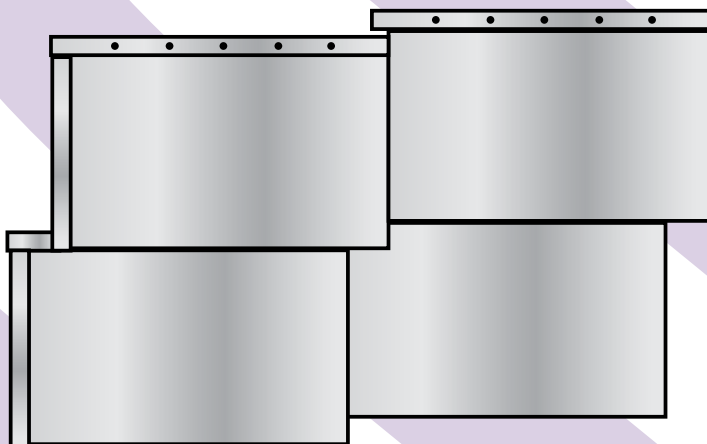
Interlocking panels and shingles

This technique is defined by its linear line obtained by interlocking sheets together using lozenge, square or rectangular shapes. Thickness is chosen as a function of the size of the elements and answers all architectural demands. Panels are fixed on continuous and rigid wooden support or onto secondary framework. Assembled on site or off-site in a workshop from stainless steel sheets, these facade elements are fixed together on each of the four folded sides. The folding and closure of the profile are done with traditional methods and special tools.

Strengths

- > Interlocking joints can be formed on flat or curved surfaces.
- > Possibility to vary the look according to the thickness (from 0.4 to 1.5 mm).

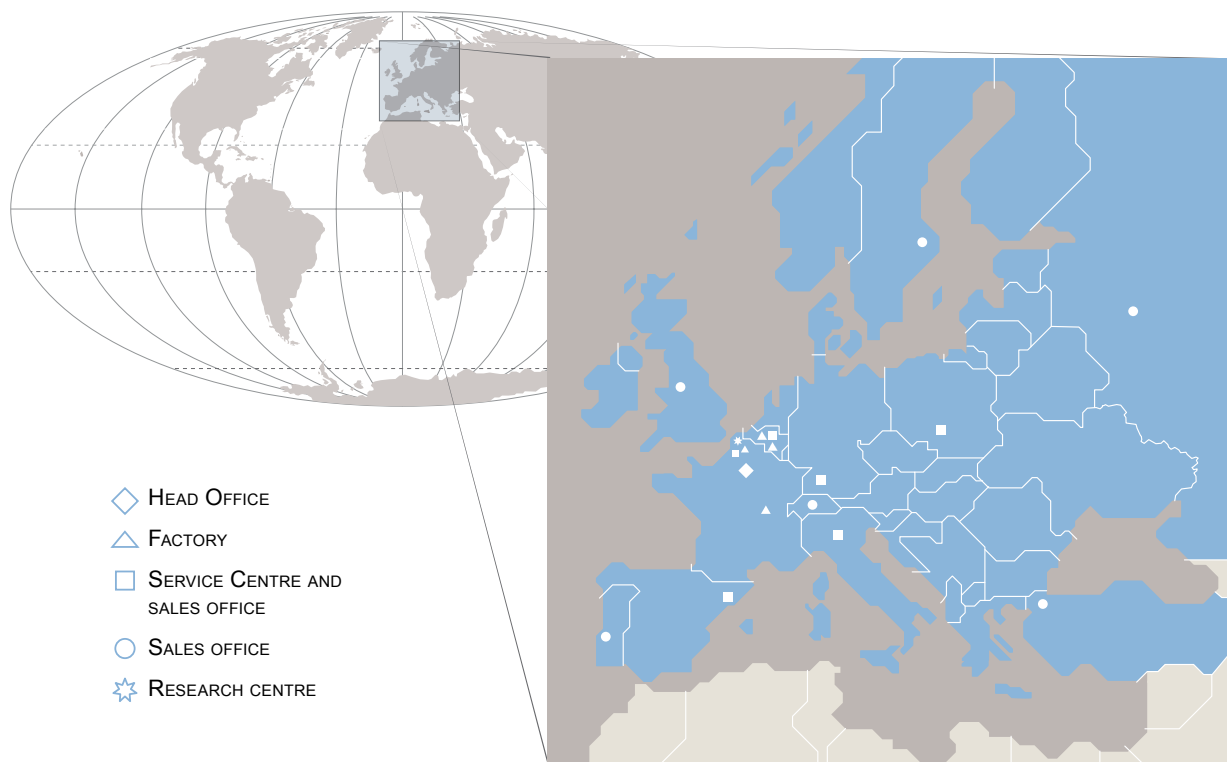
Example of interlocking panel / shingle



Flatness can vary according to format and thickness chosen.



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Stainless Europe

A tailor-made stainless steel solution for each customer.

Stainless Europe is committed to meeting your needs in terms of proximity and availability.

Through our European network of service centres and sales offices, you benefit from both the might of a large organisation and the responsiveness of a unit matched to organisations of all scales. This is how we meet your requirements with our stainless steel facade solutions.

Please contact our experts to confirm your choice and work on a tailor-made solution with the benefit of our long-term commitment and support.

DISCLAIMER

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