



**Our stainless steel offer  
for Building**

# performan



Refuge du Gôûter, Saint Gervais - France  
Architects: Groupe H & Déca-Laage  
© Pascal Tournaire  
Executed using grade 304 with Uginox Top finish

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.

With the **Uginox** brand, we offer the most comprehensive and innovative range of surface finishes on the market, to meet a variety of expectations. **A stainless steel solution for every customer.**

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

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





**04** Our Service offer and stainless steel

**06** Our surface finishes offer

**08** Stainless steel choice criteria

**10** Our solutions for construction systems in roofing

**15** Our solutions for construction systems in facade

**28** Our solutions for structures

**29** Internal decoration and sculptures

**30** Contacts

## 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, inert and 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 and construction applications: roofs, facades, rainwater recovery systems, domestic water pipes, swimming pools, bridges and pedestrian bridges as well as interior decoration.

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

### Design

Our wide range of grades and surface finishes will let you choose stainless steel that will provide your building with continuity and sustainability thanks to corrosion resistance that is adapted to any given atmospheric environment.

Furthermore, our various stainless steels have excellent physical properties even at very low temperatures. On one hand, this allows you to use thinner pieces, providing for a lower weight per m<sup>2</sup>, and on the other hand, you can use very long pieces in single sections.

Our products are transformed and easily installed using traditional tools and machinery.

### Economic performance

Designing and building with stainless steel contributes to an excellent overall cost, that is a positive relationship between the final cost and the lifetime of the work. This comes as a result of the exceptional durability of stainless steel buildings, and the almost non-existent, easy maintenance.

The price stability, especially with our ferritic grades, as well as the cost of transformation and installation is comparable to other traditionally used metals, giving stainless steel its competitiveness.

### Aesthetics

Stainless steel offers creative freedom and architectural design which is rarely matched. Our impressive range of thicknesses and wide range of surface finishes - from the more dull to the colourful to the most brilliant. Stainless steel allows for the creation of complex shapes and pairs well with other materials such as glass, wood, stone, etc.



Over and above the 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

We make our **technical expertise available to you**, with your decision to purchase the materials for building your projects. Because the sustainability of our products depends on how you use them, from your building's exposure and its surroundings and the potential you want to attain, our business engineers advise owners, contractors and installation companies.

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 & Construction.

### Product Innovation

Aperam 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 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 building is available from stock in standard formats or in 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

Aperam 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 page 30.

# 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.

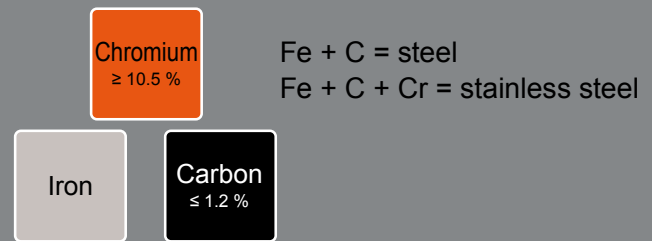
Stainless steels' corrosion resistance and mechanical properties can be further enhanced by the addition of other elements such as nickel, molybdenum, titanium, niobium, manganese, etc.



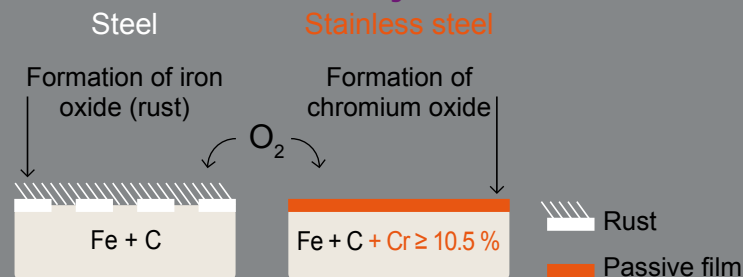
KARA is the Aperam brand for ferritic stainless steels. Unlike other stainless steels, the KARA range does not contain nickel and is thus immune from the erratic price fluctuations of this alloying element.

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

## Composition of stainless steels

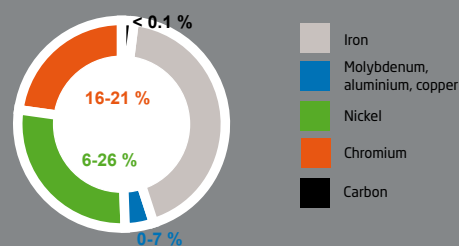


## Reaction of steel and stainless steel in contact with air humidity or water

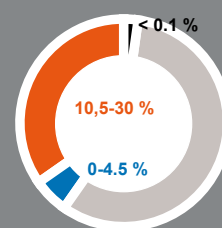


## The various categories of stainless steel suitable for building

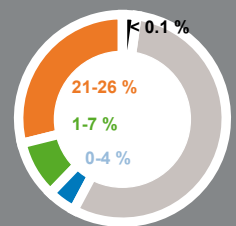
### Austenitic S300



### Ferritic S400: our KARA ferritic stainless steel solutions



### Duplex



# Stainless steel - a choice material

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

Properties (typical values)	304	316L	K30	K36	K41	K44	DX2205	DX2304	Zinc Cu - Ti <sup>(1)</sup>	Copper DHP Cu-b1 1/4 hard <sup>(1)</sup>	Aluminium EN AW 5005 <sup>(1)</sup>	Carbon steel 1.0242 <sup>(1)</sup>
Density	7.90	7.90	7.70	7.70	7.70	7.70	7.80	7.80	7.18	8.93	2.70	7.70
Expansion in mm/m per 100 °C	1.60	1.60	1.10	1.10	1.10	1.08	1.30	1.30	2.20	1.68	2.35	1.20
Melting point in °C	1450	1440	1500	1480	1505	1495	1460	1465	418	1083	660	1600
Modulus of elasticity en MPa x 10 <sup>3</sup> (20 °C)	200	220	220	220	220	220	200	200	80	120	69	210
Yield strength in MPa	300	300	330	370	310	380	620	550	110/150	190	45	250
Tensile strength in MPa	650	620	500	520	480	520	840	730	150/190	260	120	330
Thermal conductivity in W/m.K	15	15	25	30	25	23	16	17	110	328	201	30
Mean elongation in %	54	52	26	29	30	28	29	30	40	25	27	19

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



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

## A wide 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.



## Uginox Patina

A tin-plated stainless steel, Uginox Patina is available in two grades of ferritic stainless steel: K41 (0.4 mm and 0.5 mm thick) and K44 (0.5 mm thick) to meet even the most aggressive of all atmospheric conditions.

These are coated with tin by electroplating on both sides. Tin acquires a patina over time, giving it a living character and a matt grey appearance, which is particularly popular. Tin reduces the natural shine of stainless steel and facilitates its integration into any location.

In addition, Uginox K41 and K44 are easily soldered and can be worked with in winter temperatures.

## Our recommendation

The surface finish Uginox Patina is suitable for standing seam, self supporting and cleated seam roofing as well as for roofing accessories. However, we do not recommend the use of tinned stainless steel for vertical fascias or soffits where the desired aesthetic may be delayed due to no natural rain washing.





## Uginox Top

Matt finish.  
Available in 304 and 316L  
Thickness: from 0.4 mm to 3 mm  
Applications: Roofing - Facade - Interior



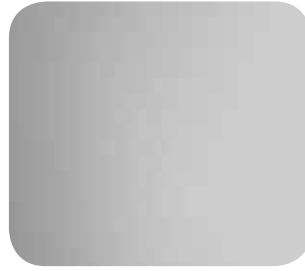
## Uginox Bright

Particularly bright and uniform surface with low roughness.  
Available in 304 / 316L / K36\*  
Thickness: from 0.5 mm to 2 mm  
Applications: Roofing - Facade - Interior



## Uginox Sand

Sand blasted finish.  
Please consult us  
Applications: Facade - Interior



## Uginox Mat

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



## Uginox Rolled-On

The fine polished look with the qualities of a rolled-on finish.  
Available in 304 / 316L / K30 / K36 / K41 / K44  
Thickness: from 0.4 mm to 1.5 mm  
Applications: Roofing - Facade - Interior



## Uginox Touch

Fine bead blasted finish.  
Available in 304 and 316L  
Thickness: from 0.8 mm to 1.5 mm  
Applications: Facade - Interior



## Uginox Linen

The linen patterned finish.  
Available in 304 / 316L / K30 / K41\*  
Thickness: from 0.6 mm to 2 mm  
Applications: Facade - Interior



## Uginox Leather

Leather look pattern.  
Available in 304 / 316L / K30 / K41  
Thickness: from 0.8 mm to 2 mm  
Applications: Facade - Interior



## Uginox Squares

The chequer pattern finish.  
Available in 304 / 316L / K30 / K41\*  
Thickness: from 0.8 mm to 2 mm  
Applications: Facade - Interior



## Uginox Méca 8 ND

Non directional, super mirror polished finish.  
Available in 304 and 316L  
Thickness: from 0.5 mm to 8 mm  
Applications: Facade - Interior



## Uginox Lozenge

The lozenge pattern finish.  
Available in 304 / 316L / K30 / K41\*  
Thickness: from 0.8 mm to 2 mm  
Applications: Facade - Interior



## Uginox Coloured

A range of coloured stainless steels: gold, champagne, blue, bronze, black.  
Available in 304 and 316L  
Thickness: from 0.5 mm to 3 mm  
Applications: Facade - Interior

\*Please consult us

## Our recommendation

It is important that the choice of surface finish be compatible with the environment. An identical grade, with low roughness, like Uginox Bright, Uginox Mat and Uginox Méca 8 ND are finishes most resistant to corrosion because the low roughness means contaminants cannot easily attach themselves and are considered as "self cleaning". Our finishes are uniform and can be reproduced, especially those achieved by etching.

# Selection criteria for stainless steels

## Chemical composition

Commercial designations		Standards			Chemical composition in % (typical values)						
		ASTM		EN							
		Designations									
		TYP	UNS		C	Si	Mn	Cr	Mo	Ni	Other
Austenitics	304	304	S30400	1.4301	0.05	0.40	1.10	18.20		8.05	
	316L	316L	S31603	1.4404	0.025	0.40	1.20	16.80	2.10	10.10	
Ferritics	K30	430	S43000	1.4016	0.04	0.35	0.30	16.50			
	K36	436	S43600	1.4526	0.02	0.40	0.25	17.50	1.25		Nb = 0.50
	K41	441	S43932 S43940	1.4509	0.015	0.60	0.30	17.80			Ti + Nb = 0.65
	K44	444	S44400	1.4521	0.015	0.50	0.30	17.70	1.85		Ti + Nb = 0.45
Duplex	DX 2205	2205	S32205	1.4462	0.02	0.30	1.80	22.80	3.10	5.50	N = 0.17
	DX 2304	2304	S32304	1.4362	0.02	0.40	1.50	23	0.50	4.90	N = 0.10

## Grade selector depending on atmospheric exposure

The choice of stainless steel grade 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		Internal environment		External environment					
		Benign, all levels of relative humidity	Corrosive*	Unpolluted rural	Urban and industrial		Marine		
					Normal	Severe*	20 to 10 km	10 à 3 km	Coastal (<3 km)
Austenitics	304	✓	▲	✓	✓	▲	✓	✗	✗
	316L	✓	▲	✓	✓	▲	✓	▲	▲
Ferritics	K30	✓	✗	✗	✗	✗	✗	✗	✗
	K36	✓	▲	✓	✓	▲	✓	✗	✗
	K41	✓	▲	✓	✓	▲	▲	✗	✗
	K44	✓	▲	✓	✓	▲	✓	▲	▲
Duplex	DX2205	✓	▲	✓	✓	▲	✓	✓	✓
	DX2304	✓	▲	✓	✓	▲	✓	▲	▲

✓ : 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.





Kindarena Sports Hall, Rouen - France  
Dominique Perrault Architecture  
© Georges Fessy / DPA / Adagp, Paris 2014  
Executed using grade 304 with Uginox Méca Brill finish



The Bullring, Birmingham - United Kingdom  
Architect: Chapman Taylor  
© Aperam  
Executed using grade 304 with Uginox Sand finish



# solution

## We guarantee you

a level of quality and uniformity of surface across our entire specialist range of finishes for the building sector.

Affording freedom of form and appearance, stainless steel roofing blends into all environments and is suited to all styles of architecture, both newbuilds and renovation projects. Longlasting, easy to maintain and recyclable, it satisfies sustainable development considerations. Our stainless steels are suited to the various construction systems presented below. For each technique, our experts are available to advise and guide you in your choice.

## Fully Supported Roofs

### Standing Seam Roofs

This traditional technique is distinguished by its linear rhythm; the standing seam gives it a particularly clear finish.

Assembled on site from stainless steel strips, these roofs are suited to both contemporary and traditional architecture.

The stainless steel strips are joined along their length by crimping of the previously raised edges. The bending or closing of the profile is performed in the traditional manner or using specialist tools.

The limited number of transverse seams and welds ensures maximum weathertightness.

Standing seams can be used on warm or cold roofing systems.

### Strengths

- > Ideal for large flat surfaces that require the use of long strips.
- > Cost reduction by the use of longer pieces and low weight per m<sup>2</sup>.
- > Not fragile and no risk of fracturing at low temperatures.
- > Immaculate aesthetics.
- > Ideal technique for curved surfaces and complex shapes (domes, cones, etc.).



Crownhill Crematorium, Milton Keynes  
United Kingdom  
Architecture MK  
© Aperam  
Executed with Uginox Patina finish



Covered Halls and Skating Rinks, La Bresse - France  
Architect: François Lausacker  
Executed using grade K41 with Uginox Patina finish

## Batten Roll roofs

The batten roll method is the oldest of the traditional techniques and is particularly suited to rehabilitation projects.

This method consists of joining the strips by interposing a timber batten in the direction of the slope.

In this system, weathertightness between the steel strips is provided by a capping covering the timber battens.

This capping provides the roof with its characteristic wide-joint appearance.

This technique may just as well be used on warm or cold roofing systems.

## Strengths

- > Cost reduction by the use of longer pieces and low weight per m<sup>2</sup>.
- > Ease of maintenance and repair.
- > A strong visual element is achieved.
- > Not fragile and no risk of fracturing at low temperatures.

## Capacities relating to entirely roofing coverage types

The use of stainless steel enables the use of 14 to 30 metres lengths of strip – dependent upon national regulations – in thicknesses between 0.4 mm and 0.5 mm.

The widths installed depend on the project location (sheltered, normal or exposed) and on each country's wind zones.

## Collection and disposal of rain water

Roofing accessories are the ideal complement to a stainless steel roof.

Ideal for rainwater collection, stainless steel enables the manufacture of guttering and downpipes in welded sections or in a continuous length of up to 20 m (according to the width) thus reducing the number of soldered joints and enhancing system integrity.

Stainless steel in thicknesses of 0.4 mm and 0.5 mm is easy to work even in cold weather and can be easily soldered in situ using tin solders.

Depending on component length, it can be folded in the workshop or on site, using special tooling. The Uginox Patina and Uginox Top surface finishes are traditionally used for roofing accessories.



St Barnabas Church, Edington - United Kingdom  
Architect: Brownhill Hayward Brown  
© Terence Smith Photography  
Executed with Uginox Patina and Uginox Top finishes

The use of stainless steel enables the use of long strips, which offers the advantage of reducing the number of expansion joints.



Kadampa Manjushri Buddhist Temple  
Ulverston, Cumbria - United Kingdom  
Architect: Mark Tole  
© Aperam  
Executed with Uginox Patina finish



# strengths

EADS – Gonesse - France  
Architects: Caroline Bapst - Bruno Pantz  
© Eric Avenel  
Executed using grade 304



## Self supporting roofs

### Stainless steel profiled panels and trays

With its simple and traditional installation technique, this roofing system offers an entire range of trapezoidal or sinusoidal longitudinal profiles that fulfil architects' needs.

Trays which are pre-formed in the workshop can be used in all types of regions. This technique facilitates simple and rapid installation.

#### Strengths

- > Extent of Profile range and forming capability.
- > Spanning capacity and rigidity, simplicity and less carpentry weight.
- > Economic solution.

An ideal solution for double-skinned roofing designs, pre-formed stainless steel trays coupled with efficient installation and economic costing.

Simple and easy to fit, this technique can be used for all types of areas.

## Roofing in mountainous regions

In this type of region, projects must be designed and executed taking into account the range of surface temperatures, localised or distributed snow loads, the erosion caused by snow and ice movement and the risk of siphoning.

Our stainless steels are ideally suited to this type of climate, offering:

- > Excellent resistance to thermal shock.
- > No embrittlement in very cold weather.
- > Excellent mechanical strength, capable of withstanding heavy snow loads.

The standing seam roofing system is particularly well suited for mountain buildings. The stable durability of stainless steel limits the number of transversal seams and weldings needed, which limits the risk of leaks, allowing for the reinforced durability of your building projects.

The self-supporting roof system with preformed stainless steel tray system is increasingly used because of its practicality, including its ease of handling and installation, as well as for economic reasons with a low cost per m<sup>2</sup>.



CHRS le Beillard Gérardmer - France  
Architect: J. Macchi  
© J. Macchi  
Executed using grade 304 with Uginox Top finish



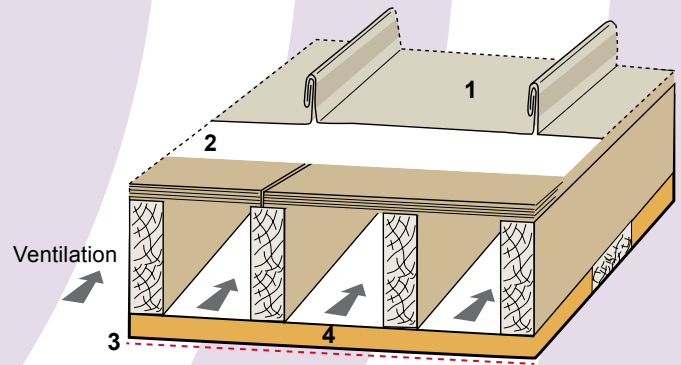
Refuge Topali - Club alpin Suisse Vallée Matter, St Niklaus  
Meier Associés architectes S.A. © Aperam  
Executed using grade 304 with Uginox Top finish

# Cold roofs and warm roofs

## Cold roofs

In the cold roofing system, ventilation is necessary not only to prevent condensation and its consequences, but also to avoid damage to the roof structure caused by humidity. A free space beneath the roof covering must be incorporated into the roof design with an air inlet and outlet, thus enabling the required ventilation. Note: These ventilation requirements apply to roofs of buildings with low or medium relative humidity.

In principle, cold roofs incorporate a cavity enabling ventilation of the components and their supporting structure. If the roof space is fitted out for use, the ventilation operates in the cavity within the roof pitch. If the roof space is void, it serves as a ventilated space. In both cases, nothing must prevent free renewal of the air. The cavity must be continuous.

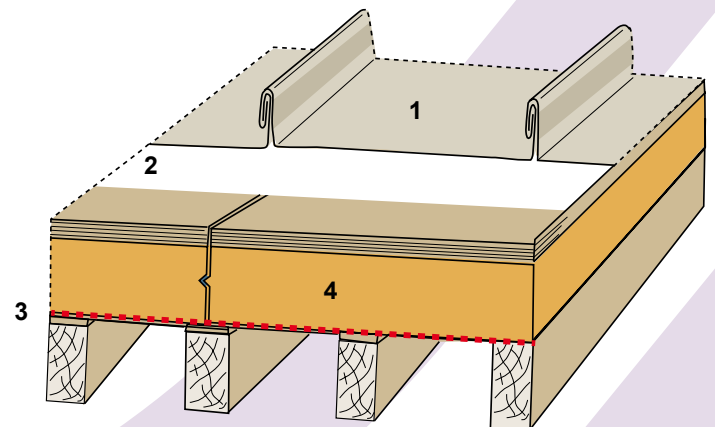


- 1 - Stainless steel roof covering
- 2 - Underlay
- 3 - Vapour control layer
- 4 - Insulation (glass wool...)



## Warm roofs

Warm roof constructions have developed more and more in recent years due to their ease of installation. Furthermore, they allow for thicker insulating materials to be used in line with recent and more stringent thermal regulations. Contrary to cold roof constructions, warm rooves are designed without ventilation on the underside. The support is generally achieved by using a single piece composite panel which serves as both the support panel and the insulation. Use of a vapour control layer is strongly recommended.







## Examples of warm roof construction systems

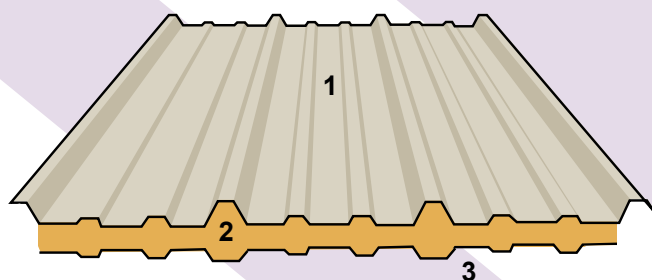
### Roofing with roll-formed stainless steel sandwich panels incorporating built-in insulation

The stainless steel sandwich panel fulfils the roles of thermal insulation and weatherproofing and is "ready to install".

The sandwich panel comprises a stainless steel outer skin and an internal skin in pre-coated or galvanised steel, between which there is a core of rigid foam.

### Strengths

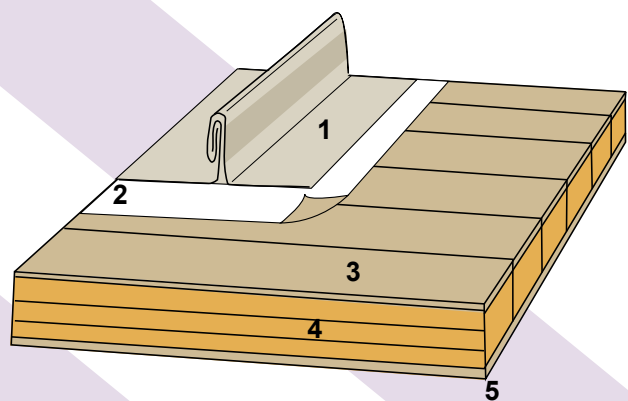
- > Particularly attractive life cycle cost.
- > Integrated solution.
- > Quality and consistency of factory production.



- 1 - Outer stainless steel skin
- 2 - Insulating foam
- 3 - Internal pre-coated or galvanised steel skin

### Metal roofing on insulating timber panel

The roof covering substrate is an insulating system comprising an insulating core of extruded polystyrene, an upper skin of particle board panels and a lower panel made of particle boards or timber laths. The traditional stainless steel roof covering (with standing or cleated seam) is installed on this substrate.



- 1 - Stainless roofing
- 2 - Polyester fibre
- 3 - Upper skin
- 4 - Insulation foam
- 5 - Lower panel





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

# Our solutions for facade construction systems

Our range of available thicknesses for each surface finish enables their continuous use for both roofing and cladding: the complete building solution.

## The advantages of stainless steel

- > Lighter envelope thanks to high mechanical properties which permit a reduction of thickness.
- > Compatible with all types of support: metal, all types of wood, etc.
- > 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.



Hotel ME, Barcelona - Spain  
Dominique Perrault Architecture  
© Vincent Fillon  
Executed using grades 316L and 304L with Uginox Bright finish



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



Renovation and expansion of a gymnasium,  
Villetaneuse - France  
Architect: archi5  
© archi5  
Executed using grade K36  
with Uginox Bright finish

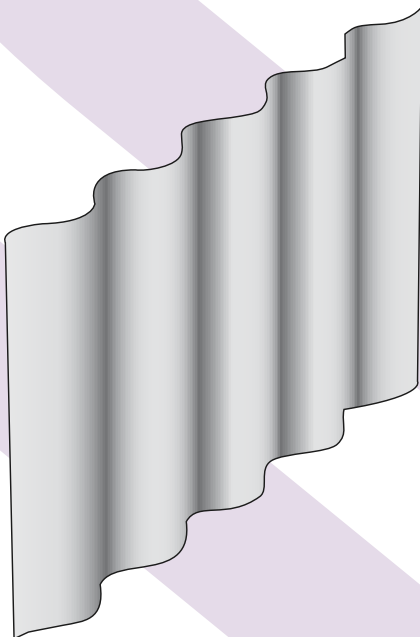
## Sinusoidal corrugated profile

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. These profiles can be installed horizontally or vertically, in single or double ply and can even be perforated. They are often used for large industrial projects as well as for commercial buildings. These profiles have a utilisable width of 1000 mm 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 long lengths.
- > Competitive square metre price.

### Example of sinusoidal corrugated profile



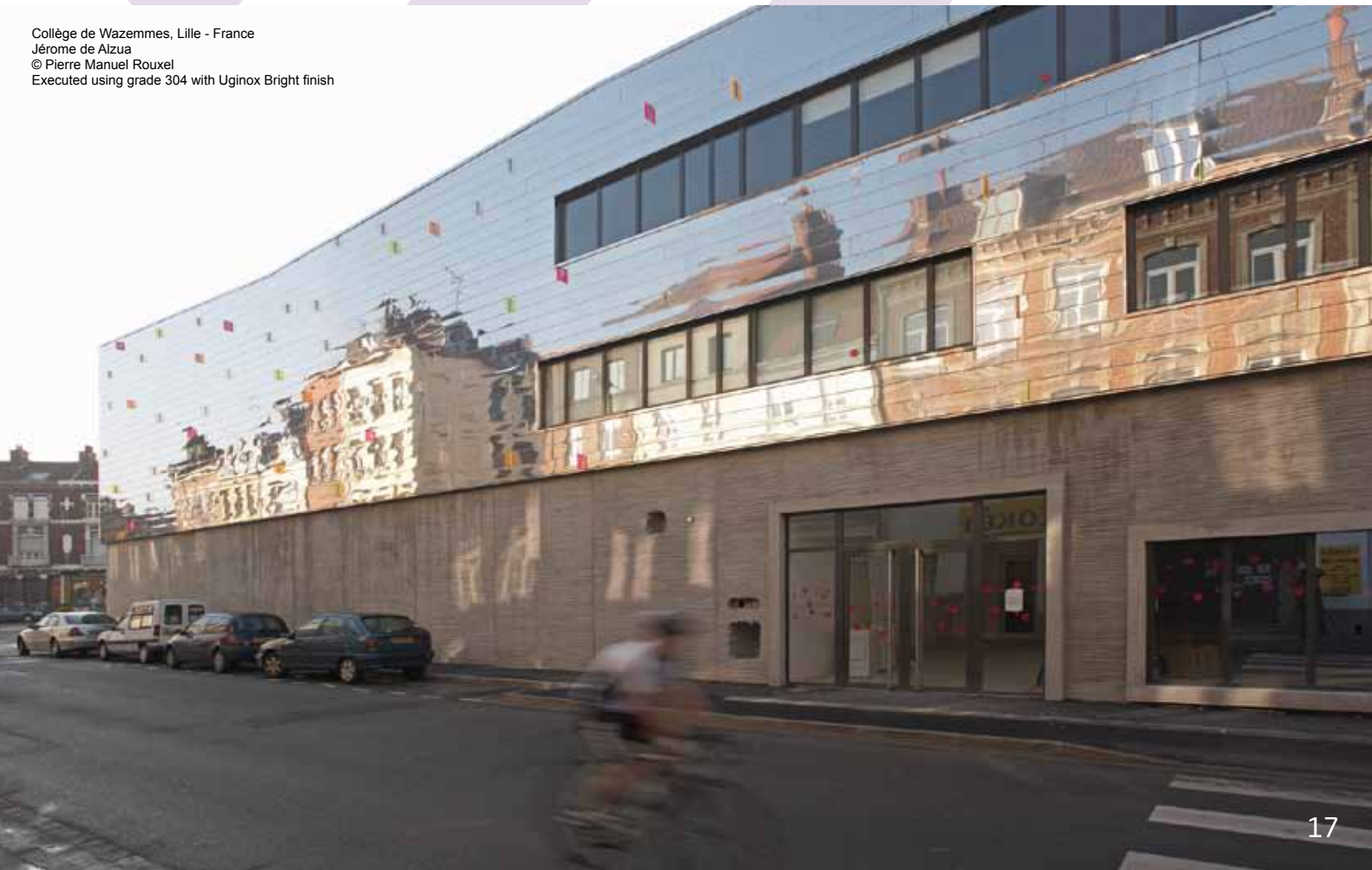
Atelier Bernar Venet, Le Muy - France  
Agence LLB Architecture  
© Serge Demailly  
Executed using grade 304  
with Uginox Bright finish





Campus des Métiers et de l'Entreprise, Bobigny - France  
 Architect: Bruno Gaudin  
 © Gaston François Bergeret  
 Executed using grade K36 with Uginox Bright finish

Collège de Wazemmes, Lille - France  
 Jérôme de Alzua  
 © Pierre Manuel Rouxel  
 Executed using grade 304 with Uginox Bright finish







Centre Ferrari - Italy  
Ateliers Jean Nouvel  
© Philippe Ruault  
Executed using grade 304 with Uginox Bright finish

# Trapazoidal corrugated profile

Trapezoidal corrugated profiles offer 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.

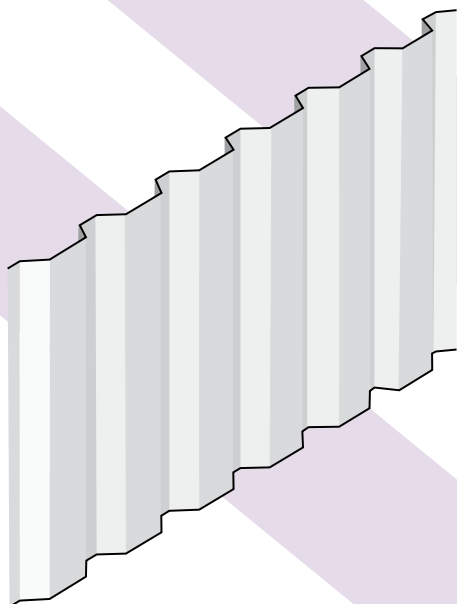
Note that folded profiles give greater rigidity to the building envelope. Length is determined as a function of the tray folder used, generally not exceeding 6 metres.

These claddings can be fixed horizontally or vertically, with a single or a double skin and are installed with interlocking joints (male and female) or clips. These profiles cover a wide range of products that adapt well to industrial, storage, offices, or residential buildings.

## Strengths

- > This type of profile adapts to all types of building and is flexible in terms of length and width.
- > Ease of replacement.

## Example of Trapazoidal corrugated profile



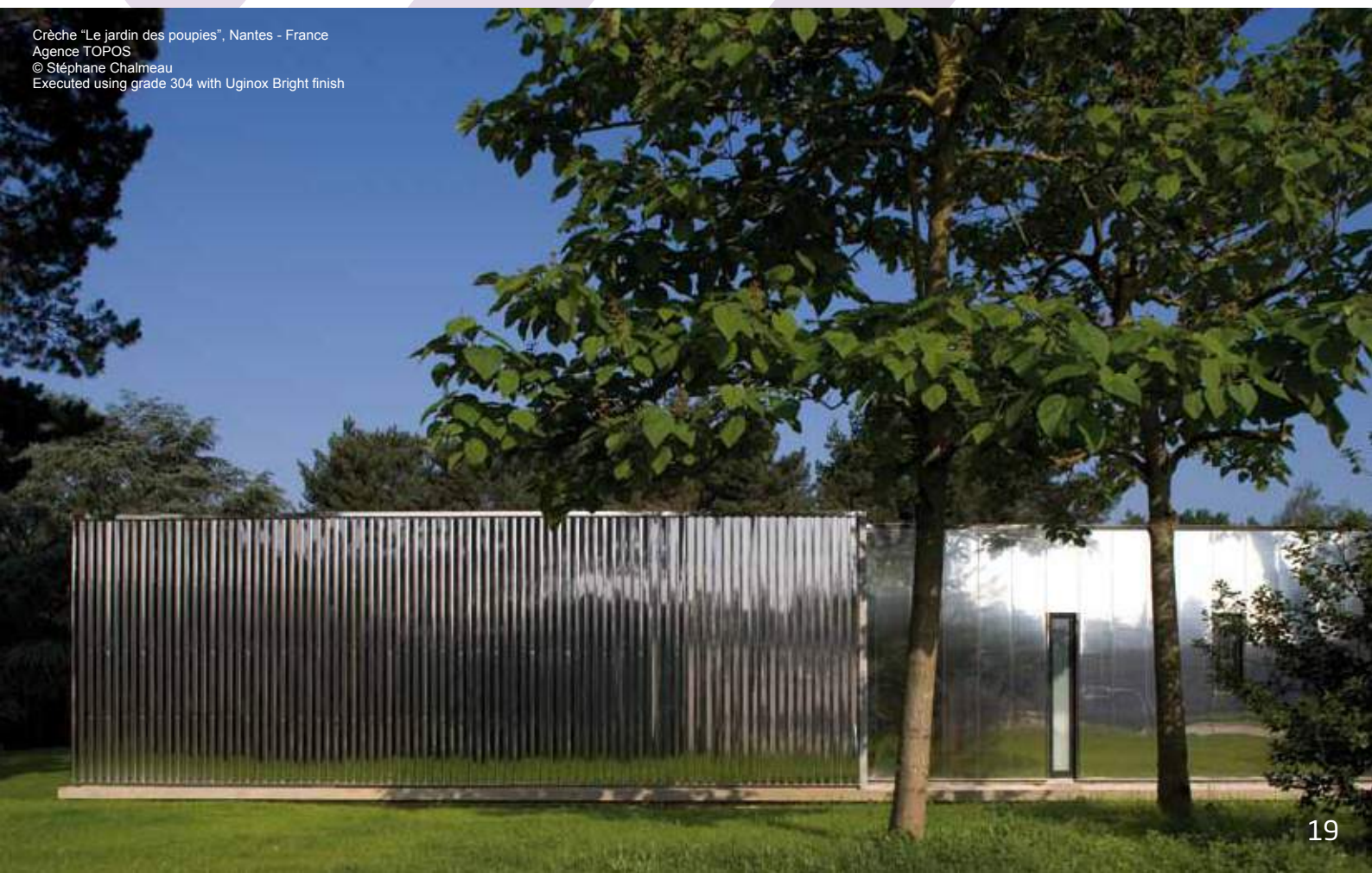
Archives Départementales du Bas Rhin Strasbourg – France  
Bernard Ropa & TOA  
© Bernard Ropa  
Executed using grades 304/316L  
with Uginox Méca 8 ND, Uginox Top and Uginox Rolled-On finishes

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 0.8 mm instead of 0.6 mm for vertical fixing.





Le Monolithe, Lyon Islands - France  
Manuelle Gautrand Architecture  
© Vincent Ramet  
Executed using grade 304 with Uginox Bright finish



Crèche "Le jardin des poupies", Nantes - France  
Agence TOPOS  
© Stéphane Chalmeau  
Executed using grade 304 with Uginox Bright finish





Centre de formation des apprentis hôteliers (CFA), Metz - France  
Bernard Ropa  
© Luc Boegly  
Executed using grade 304 with Uginox Bright finish

# Cassettes

Contrary to trapazoidal corrugated profiles, 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. In all cases, they 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.

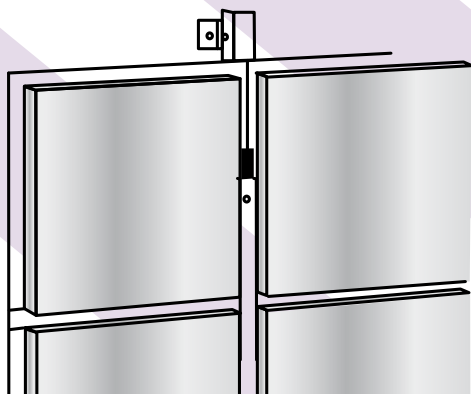
Different fixing systems exist:

- > Interlocking.
- > Fixing.
- > Mechanical fixings, 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.

## Examples of cassette mounting



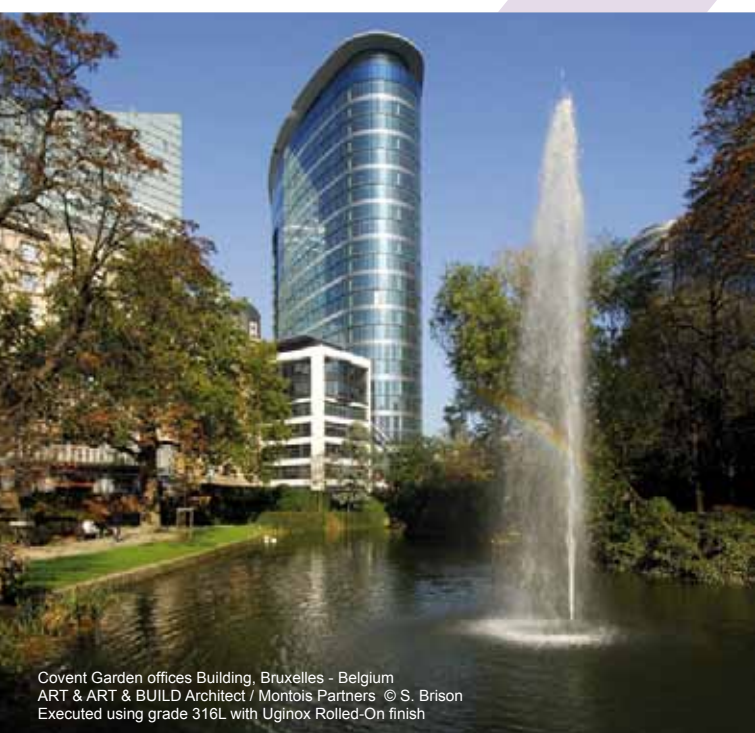
UFR de Chimie Lavoisier, Paris VII – France  
Agence X-TU: Anouk Legendre, Nicolas Desmazieres  
© Jean-Marie Monthiers  
Executed using grade 304 with Uginox Bright finish

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.

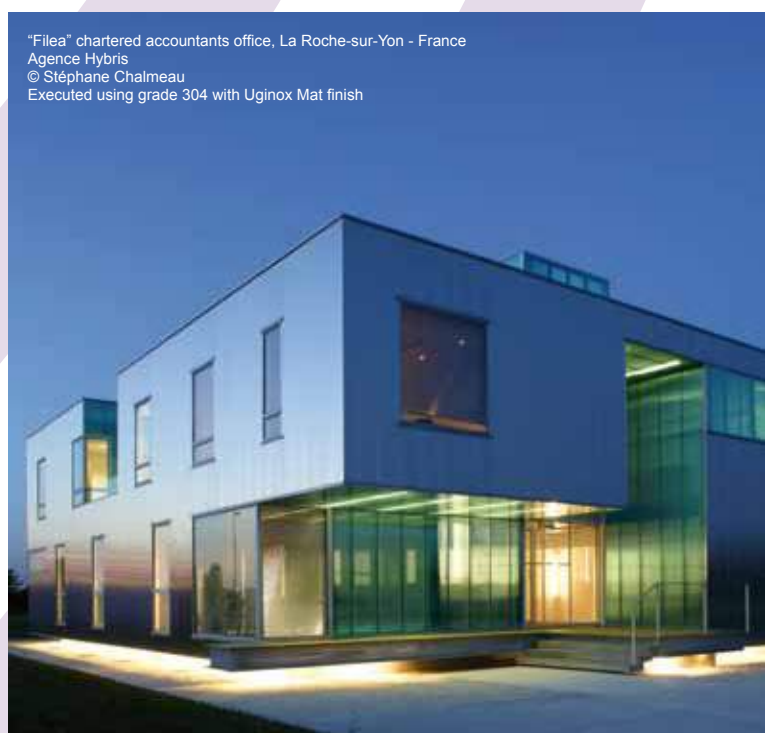




"La Commanderie" performance hall, Dole - France  
Agence Metra & Associes  
© Philippe Ruault  
Executed using grade 304 with Uginox Bright finish



Covent Garden offices Building, Bruxelles - Belgium  
ART & ART & BUILD Architect / Montois Partners © S. Brison  
Executed using grade 316L with Uginox Rolled-On finish



"Filea" chartered accountants office, La Roche-sur-Yon - France  
Agence Hybris  
© Stéphane Chalmeau  
Executed using grade 304 with Uginox Mat finish



Student housing, Paris - France  
Architect: Louis Paillard  
© Luc Boegly  
Executed using grade 304 with Uginox Bright finish





Lycée Richelieu, Rueil Malmaison - France  
Architects: André Chantalat et Gérard Liucci  
© A. Chantalat  
Executed using grade 304 with Uginox Bright finish

# Solar shades

Solar shades 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).

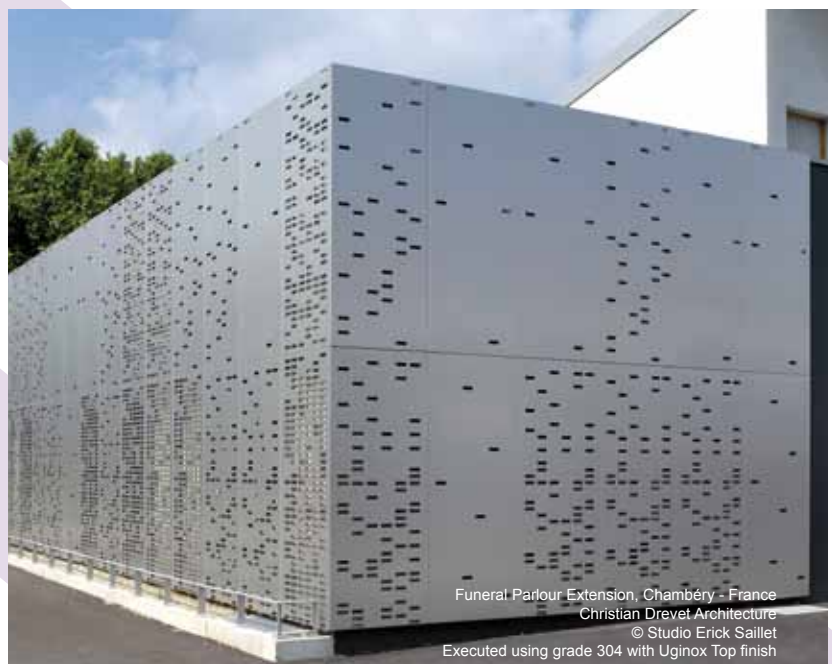
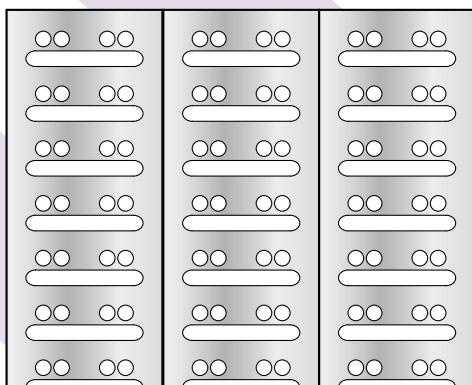
Different fixing systems exist:

- > 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.

## Example of solar shades



Funeral Parlour Extension, Chambéry - France  
Christian Drevet Architecture  
© Studio Erick Salliet  
Executed using grade 304 with Uginox Top finish

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





Hotel Industriel, Paris 18e - France  
Architects: Valode & Pistre  
© André Morin  
Executed using grade 304 with Uginox Bright finish



Library, Le Chesnay - France  
Architects: Atelier Badia Berger  
© David Boureau  
Executed using grade 316L  
with Uginox Bright finish



Kennedy parking, Rennes - France  
Agence Michel Roulleau  
© Stéphane Chalmeau  
Executed using grade 304 with Uginox Bright finish





Eashing House, Godalming - United Kingdom  
 Architect: Edgeley Design Ltd  
 © Aperam  
 Executed using grade 316L with Uginox Mat finish

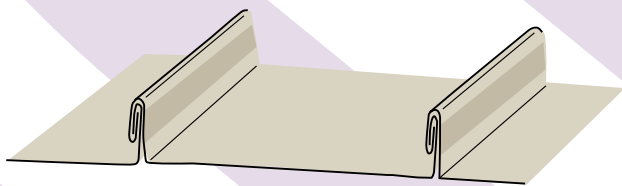
# Standing-seam cladding

This type of cladding, used for traditional covering is defined by its linear lines and meets all architectural demands. Produced either on or off-site in a workshop from coils of stainless steel, these systems are joined together on site 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

- > Possibility of long lengths (up to 6m according to technical restraints).
- > Possibility to have continuity between the roof covering and the facade.

## Example of a standing-seam



Médiathèque, Armentières - France  
 Architects: Beal & Blanckaert  
 © Pierre Manuel Rouxel  
 Executed using grade 304 with Uginox Bright finish

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 onto continuous and rigid wooden support or onto secondary framework.

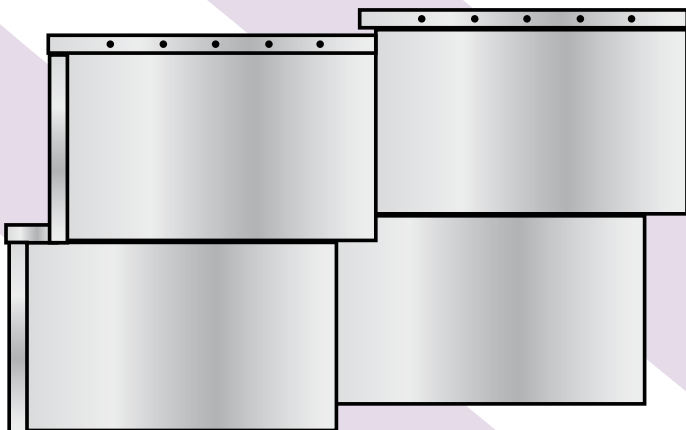
Manufactured on or off-site in a workshop from stainless steel sheets, these facade elements are assembled on site and fixed together on each of the four folded sides.

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).
- > Possibility to combine a variety of surface finishes on a single facade.

### Example of interlocking panel / shingle



Flatness can vary according to format and thickness chosen.



Arc Iris, Waste Reception Center, Perpignan - France  
Architect: Luc Arsène-Henry Jr  
© Luc Arsène-Henry Jr  
Executed using grade 316L  
with Uginox Top finish - Champagne colour



South Liverpool NHS Treatment Centre, Garston  
United Kingdom  
MBLA Architects+Urbanists  
© Infinite 3D Ltd.  
Executed using grade 316L  
with Uginox Bright finish



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



Collège Albert Debeyre, Beuvry - France  
Parallèle 3 Architectes  
© Aperam  
Executed using grade 304 - Gold colour



Swimming pool, Woluwe-Saint-Pierre - Belgium  
Executed using grade 316L

# Structures

## Swimming pools

Today, our range of stainless steels covers all requirements relating to swimming pool applications: pools (including pool edges, overflow gutters, partitions, etc.), ladders, diving boards, starting platforms, but also the water distribution system.

The grades employed are principally austenitic (304, 316L). For certain applications in harsher environments, such as the thermal spa, one can employ grades with even higher properties, such as duplex (DX2205, DX2304).

### Strengths

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- > Stainless steel is a durable material whose appearance does not deteriorate and is simple to maintain.
- > Stainless steel withstands the operating temperature variations for this application.
- > No risk of leaking water unlike a tiled pool.
- > The surface properties of stainless steel plates and the assembly style of the different pieces limit the risk of bacterial growth.
- > This material provides a very effective alternative to the traditional solution. It is possible that the capital costs may be higher, but operating costs are lower. Over the facility's full lifespan, the return on investment is attractive.

## Bridges and pedestrian bridges

Stainless steel can be found in all or any part of a bridge or a pedestrian bridge. Its use is common in elements of protection - handrails and banisters - as well as in the wires on suspension bridges, cables and tie rods. It is also recommended for the deck and for anchor elements, including those built in marine and polluted atmospheres. Following atmospheres, the austenitic (304, 316L) or duplex (DX2205, DX2304) grades may be well-suited.

### Strengths

---

- > Corrosion resistant, with a very good mechanical resistance, high yield: the choice of stainless steel is a guarantee of quality in construction of works of art.
- > Characteristics meet the strictest technical requirements: long range, lighter structures, and seismic performance.
- > Can be used bare, even in very aggressive environments such as seashores or industrial areas.
- > Young's modulus on density allows us to balance between lightness and rigidity and thus create fine and sleek works.
- > Benefits associated with the use of this material are also often the source of savings which ultimately put the cost into perspective.



# Interior decoration and sculptures



Banque de France - Visitor spaces, Paris - France  
Architects: Moatti - Rivière  
© Michel Denancé  
Executed using grade 304 with Uginox Méca 8 ND surface finish (mirror polished)



Nathalie Decoster  
"Stylites"  
© Frédéric Guy

Stainless steel applications are numerous and depend on the imagination of the user:

- > Interior decoration: elevators, furniture metal, store fixtures, decoration of stands, bars, bank counters, entrances, collective kitchen furniture, etc.
- > Urban furniture, signs, monuments, etc.
- > Industrial screen printing, signs, corporate logos, etc.

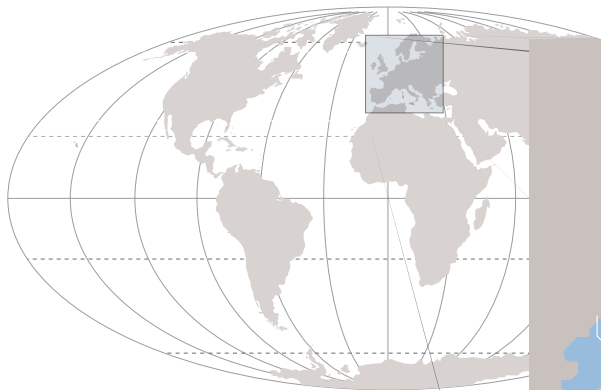


Xavier, 2011.  
X. Veilhan  
Manufacturing company:  
Enzyme Design  
Private collection, Hong Kong  
Executed  
with Uginox Méca 8 ND  
surface finish  
(mirror polished)

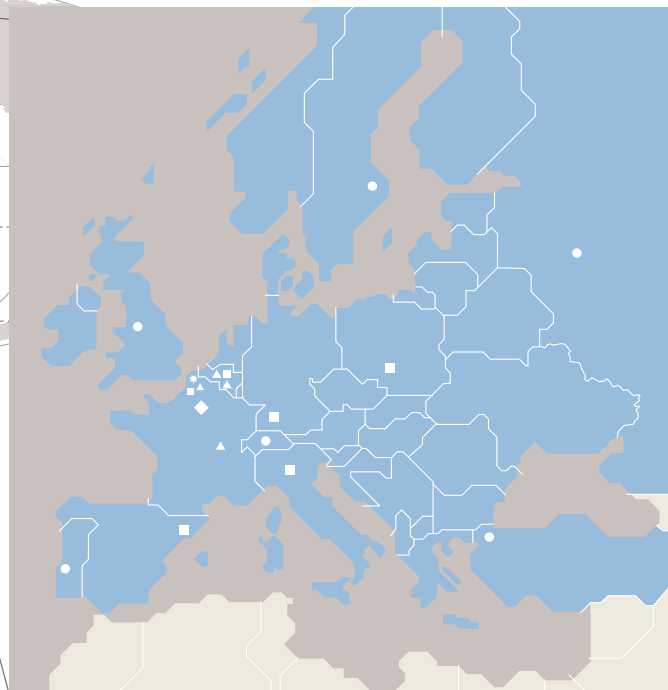


Emmanuel Régent, Valles Marineris, stainless steel modular installation, 1200 x 150 x 60 cm, 2012.  
© Emmanuel Régent, courtesy Caroline Smulders / I love my job (Paris)  
Photo of the solo exhibition "Sortir de son lit en parlant d'une rivière",  
CAC Château des Adhémar, Montélimar, 2012 © Blaise Adillon

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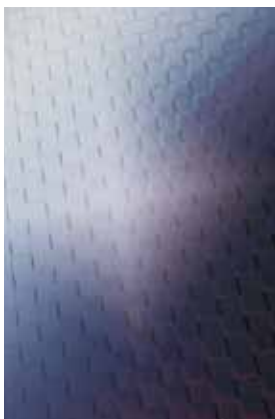
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## Aperam Stainless Europe

A tailor-made stainless steel solution for each customer

Ensuring proximity and availability to meet your needs is one of our commitments.

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.

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.

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