

# The advantages of stainless steel in roofing

## What is stainless steel ?

Steel is an iron and carbon alloy. Stainless steel is a steel containing in its mass at least 10.5% chromium, other alloying elements, and less than 1.2 % carbon.

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 “passive layer”, provides it with lasting protection against all types of corrosion. This passive layer is naturally self-healing when in contact with humidity or water.

## The advantages of stainless steel in Roofing

### Environment and recyclability

- > Stainless steel is a « green material » par excellence and is infinitely recyclable and recycled. Within the construction sector, its actual recovery rate is close to 100%.
- > It is unchangeable and totally inert with regard to the environment : in contact with elements such as water, it does not release compounds which could modify the composition.
- > Stainless steel's longevity fulfils the requirements of sustainable construction (THQE, BBC).

### Durability

- > Stainless steel is corrosion resistant, thanks to its passive layer, which allows its use in various atmospheric environments, even the most severe.
- > Stainless steel has a high strength resistance and an excellent resistance to thermal shock.
- > Stainless steel is ranked A2s1d0 for fire resistance with no toxic fume emissivity.
- > No embrittlement of stainless steel in very cold weather.

### Economic performance

- > Cost levels of stainless steel transformation are comparable with other metals traditionally used.
- > The cost of stainless steel roofing enables an excellent quality versus price ratio to be achieved in construction.
- > Choosing stainless steel offers a long-term guarantee.



entrum Paul Klee, Suisse  
Renzo Piano Building workshop  
In collaboration with ARB (Bern)  
© RPBW – Michel Denancé  
Achieved with grades 304, 316L  
UGITOP finish

### Implementation

- > On site machinery used for implementation of stainless steel is the same as for other materials.
- > Stainless steel solders easily.
- > Stainless steel can be worked in winter temperatures, which allows a longer laying period.

### Design

- > Stainless steel is suited to all styles of roofing (batten rolls, standing seams, self-supporting trays), both new build and renovation projects.
- > It allows architectural creation, design and the realisation of complex shapes.
- > It combines easily with other materials (glass, wood, concrete...).
- > A low thermal expansion coefficient allows the manufacture of continuous lengths of up to 20m in a single run.

# Our offer finishes /grades



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.
- > A given surface finish can be achieved on different grades of stainless steel.
- > Surface finishes are the result of mechanical or physical-chemical treatment of the surface of the steel.

Refuge Topali, Switzerland - Meier Associés architectes SA - © Aperam  
Executed using grade 304 UGITOP finish



## UGITOP

- > Permanent and durable matt finish from the installation.
- > It blends into all types of environment, both rural and urban, traditional or modern, and is suited to all styles of architecture.



## UGIBRIGHT

- > Particularly bright and uniform surface.
- > Its smooth surface lends itself to both light and form.



## UGINOX TINNED

- > Stainless steel with an electro-tinned coating on both sides.
- > It weathers over time, and becomes grey with a matt finish.
- > The tin tones down the stainless steel's natural lustre, enabling it to blend into all environments.



## UGIBAT

- > This uniform dull surface enables the accomplishment of very elegant, aesthetic projects.

## Selection guide of grades taking account the environment

Commercial designations	Norms				External environment					
	ASTM		EN	Un-polluted rural	Urban and industrial		Marine			
	Designations				Normale	Severe <sup>(2)</sup>	20 to 10 km	10 to 3 km	Costal (<3 km)	
	TYPE	UNS								
<b>UGITOP, UGIBRIGHT and UGIBAT stainless steel offer</b>										
Austenitics	304	304	S30400	1.4301	✓	✓	▲	✓	✗	✗
	316L	316L	S31603	1.4404	✓	✓	▲	✓	▲	▲
<b>UGINOX Tinned stainless offer</b>										
Tinned austenitic UGINOX AME	UGINOX AME 316L	316L	S31603	1.4404	✓	✓	▲	✓	▲	▲
Tinned ferritics UGINOX FTE/FME	UGINOX FTE K41	441 <sup>(1)</sup>	S43932	1.4509	✓	✓	▲	✗	✗	✗
	UGINOX FME K44	444	S44400	1.4521	✓	✓	▲	✓	▲	▲

✓ : Type suited to the environment    ▲ : Type whose selection will be determined after consulting us    ✗ : Type not suited to the environment  
(1) Current designation - (2) In particular, any environment or atmosphere containing corrosive substances or halogens: chlorides, fluorides, etc.

## Our dimensional range

**Forms** : coils, small coils, sheets

**Thicknesses** : 0.4 and 0.5 mm

(please contact us for other thicknesses)

**Widths** : 500 - 580 - 625 - 670 - 800 - 1000 - 1160  
or 1250 mm according to grades

**Finishes** : UGITOP, UGIBRIGHT, UGIBAT, UGINOX  
FTE/FME/AME (please contact us for other finishes)

Aperam Stainless Europe  
1-5 rue Luigi Cherubini  
FR-93212 La Plaine Saint Denis Cedex

Renseignements  
Tel. : +33 1 71 92 06 52  
Fax : +33 1 71 92 07 97  
www.aperam.com/stainlesseurope  
stainless.europe@aperam.com