

ArcelorMittal Dofasco



ArcelorMittal

**Indaten<sup>®</sup>**

Weathering Steel



# A perfect blend of strength and raw beauty

Weathering steels are versatile and intended for exterior building use in façades or roof applications seeking the modern concept that architecture and infrastructure should blend with natural and urban landscapes.

In both new and refurbishment projects, weathering steels create an innovative and unique aspect. Weathering steel for cladding can be shaped into a wide range of geometries, including roll formed and single sheet panels.

Using decades of experience with corrosion resistance mechanisms, ArcelorMittal has developed a cold rolled weathering grade known as Indaten® for steel building panels that will satisfy the requirements of ASTM A606 Type 4.

### Key benefits of Indaten®

#### Attractive, aesthetic appearance

- Authentic, natural colour
- Evolving patina over time
- Blends with natural and urban environments

#### Economic advantages

- No need to re-protect surface, no painting costs
- Minimal maintenance

#### Processing

- Easy to process with the same tools and equipment as structural steels
- No extra processing or equipment costs

#### Sustainability

- 100% recyclable
- No additional corrosion protection needed, no repainting
- No volatile organic compounds (VOCs) emitted
- Reduced carbon footprint

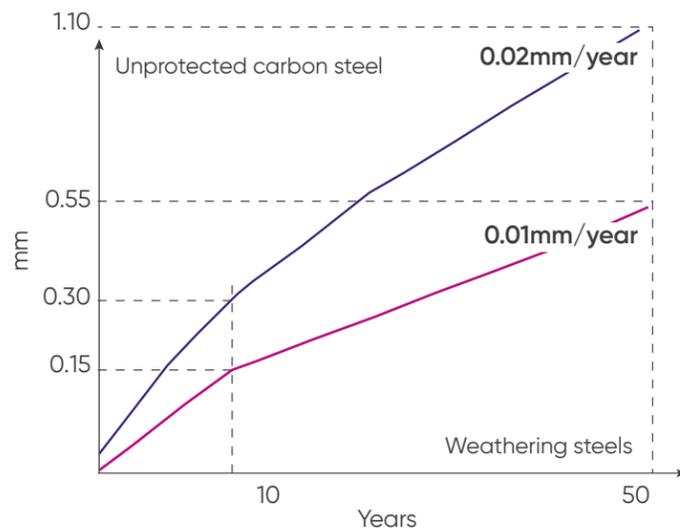
Versatile steels intended for enhancing exterior esthetics

### What are weathering steels?

Weathering steels offer improved atmospheric corrosion resistance thanks to the addition of copper during the steelmaking process. Additional alloying elements are included to increase the steel's tensile strength and formability. Weathering steels are classified as a type of high strength low alloy (HSLA) carbon steel. Flat rolled weathering steel characteristics are defined in the ASTM standard A606/A606M and supplied with no mill applied metallic or organic coatings.

Like unprotected carbon steels, weathering steels will oxidize and corrode (rust) when exposed to outdoor environments and climate. However due to the unique chemistry, the corrosion rate of weathering steels is generally much lower than a typical carbon steel.

Figure 1: Annual steel loss due to corrosion (in mm) measured in accordance with ISO 12944-2 for a C4 environment.



### Development of the patina

A unique aspect of weathering steels is the exposed surface changes over time. It transitions from its initial dark grey mill finish to an orange patina in a matter of weeks. The patina continues to evolve, reaching its final dark brown colour after several years – dependent on local weather conditions. Its distinct brownish, non-uniform patina, with coarse texturing, means weathering steel will integrate perfectly into both urban and natural environments.

For the best results weathering steels must be exposed to alternating wet/dry cycles, with no permanent wet or damp conditions, such as contact with stagnant water, constant humidity, sheltered damp locations, soil or covered by vegetation. Aggressive atmospheres, such as distances within two kilometres of coastal waters, should be avoided as the high concentrations of chlorides are detrimental to the patina layer leading to an increased rate of corrosion. Atmospheric pollution and industrial fumes, particularly sulfur dioxide, will also negatively affect the patina and increase the corrosion rate.

During patina formation on weathering steel, small amounts of corrosion products (rust) are washed out by rainfall. The amount of corrosion product leached out by rainfall diminishes over time, but never stops completely and can lead to staining of neighbouring material. Special design considerations for the structure are needed to ensure that any discoloured rainwater is properly collected and directed away from exposed surfaces. The corrosion product consists mainly of stable iron oxide which is not harmful to the environment, vegetation or wildlife.

#### Panels at installation



#### Panels after two months



#### Panels after two years



### Product offering

Indaten® supplied from ArcelorMittal Dofasco is produced as flat cold roll sheet in coil form as outlined in the product guide below [Table 1].

Table 1: Indaten® Product Guide

Specification & Grade	ASTM A606/A606M Type 4 cold rolled Gr 45
Surface Finish	Regular matte
Surface Treatment	Dry or oiled
Surface Quality	Standard
Sizes Available	Thickness: 0.018 – 0.074" (0.46–1.88mm) Width: 30–54" (762 – 1372mm)
Thickness & Width Tolerances	ASTM standard, 1/2, or 1/4
Flatness Tolerances	ASTM standard, 1/2, or 1/4

## Smarter steels for people and planet

ArcelorMittal is the world's leading steel and mining company. Guided by a philosophy to produce safe, sustainable steel, it is the leading supplier of quality steel products in all major markets including automotive, construction, energy, household appliances and packaging. ArcelorMittal is present in more than 60 countries and has an industrial footprint in more than 20 countries.

With a strong presence in North America, Europe, South America and South Africa, and an emerging presence in China, ArcelorMittal delivers a large scale of products, solutions and services to customers with the same quality focus in all regions. ArcelorMittal is the leader in steel technology, both in the breadth and depth of our product portfolio, and in our ability to supply a range of grades throughout the world. ArcelorMittal is a supplier of choice for all markets, a testament of our commitment to working collaboratively with our customers to engineer advanced steel grades to meet their needs.

Indaten® is a trademark of ArcelorMittal in Canada and a trademark of BIEC International Inc. in the United States.

Indaten® can be ordered directly from ArcelorMittal USA or ArcelorMittal Dofasco in Canada by contacting our sales department through the details below.



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