

Architectural finishes

Dear Architect,

We are completely sure that at some point of your career you have faced the challenge of selecting the best stainless steel finish that fits into your project. Probably, you have felt paralyzed in front of the table included in the EN 10088-2 that defines them. When you thought the most accurate alloy among the available 200, finishes come on stage!

Our intention with this brief note is to give you some help, or at least our support from the experience with this material. We could say that stainless steel is like a good friendship, its value is shown over time. Let's suppose this first stage of defining the alloy is successfully passed. Now it is time to select the finish.

As with people, the first time we look at a building we inevitably judge it. We just see its outward appearance. Façade, the skin which materiality is what the user or just observer, will appreciate at first sight. That is why the selection of the finish of the enveloping is crucial. The whole picture of the building will directly depend on it. Moreover, its durability and the neighbour's comfort will

also be affected. We would like to suggest some tips that have been useful to whom apply it. We can assure you that if you consider them, you will add value to your project.

Among multiple parameters, three fundamental tools are available to guarantee the perfect solution in stainless steel: reflectivity, roughness and design. The correct combination of these three factors, will guarantee the project's success, its durability and the attractive aesthetic of the building.

We would take for granted that the **design** of the constructive solution is perfectly suitable. It should ease the runoff and fast evacuation of the water, which will assure a long lifespan in good conditions. In the figures 1 to 4, several desirable and non-desirable execution details are shown.

Roughness is the way to measure the surface texture, the peaks and valleys, and the parameter we normally use to give it a numerical value is Ra or average roughness. The Arithmetic Average Roughness, noted as Ra, is the absolute average relative to the base length.

Figure 1: Avoiding dirt accumulation

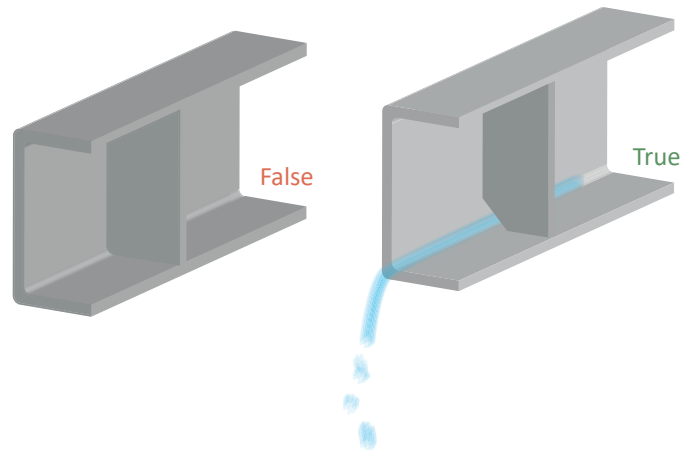


Figure 2: Avoiding indentation

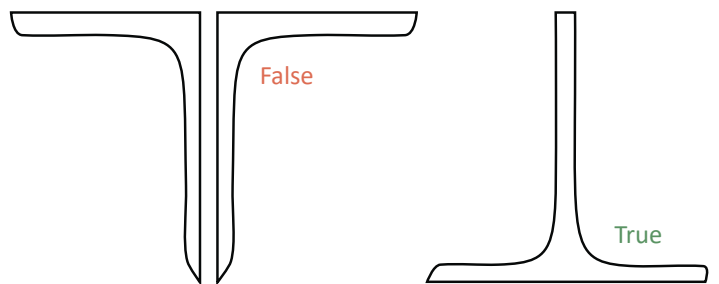


Figure 3: Clean welding

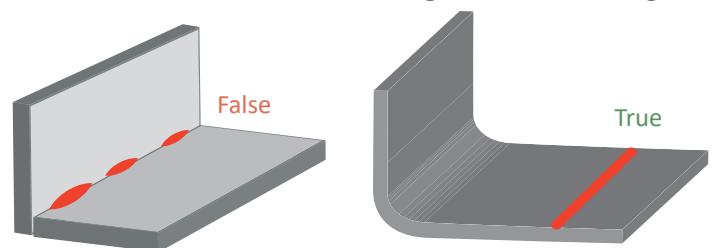
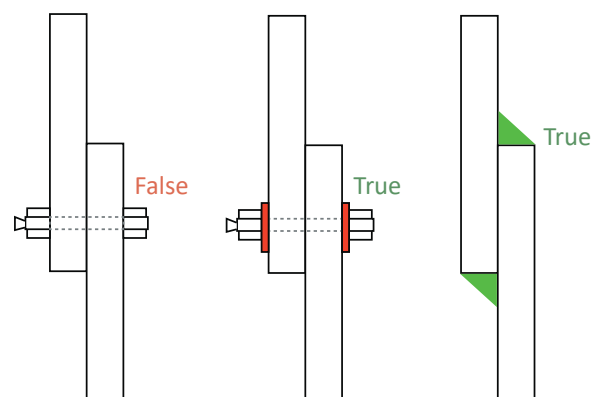


Figure 4: Reducing bimetallic contact



What is its impact? Very high, because high roughness values will ease the dirt retention in the exposed surfaces, and as a consequence, the corrosion resistance of the material will decrease. The Cloud Gate in Chicago is a perfect sample, with its low roughness of its mirror polished finish, can sign 1000 years of lifespan by contract.

The **reflectivity** is the second parameter we must control, because it could affect the neighbour user comfort, as it is directly related to glare. In this case, difficulties are based on the lack of standards that regulate it or that limit the value depending on the use, the environment, etc. We

only have our own criteria. Big projects are very demanding in this sense, as the minimum mistake can bring serious consequences further than discomfort. The collaborative effort of architects, engineers, façade builders and producers is the key to success.

The stainless steel manufacturer Acerinox has focused on the control of the reflectivity of their materials to make them available to architects. Total freedom in the selection of the finish without affecting the comfort of the neighbour user. Madrid will soon count on a new architectural icon on its skyline. In the emblematic Santiago Bernabeu stadium

refurbishment, all these parameters have been considered and applied in the façade design. The surface finish selected has been Acerinox linen, with it every element meets the requirements established by the designers without causing any undesirable reflect that could modify the image of the whole.

These last two concepts, **roughness** and **reflectivity**, are both related, the higher the roughness, the lower the reflectivity, and vice versa. The balance between them with no reduction of durability is the issue.

Here it ends the first contact with the surface finishes of stainless steel. We will be addressing more issues in successive articles.

Photograph courtesy of Real Madrid

