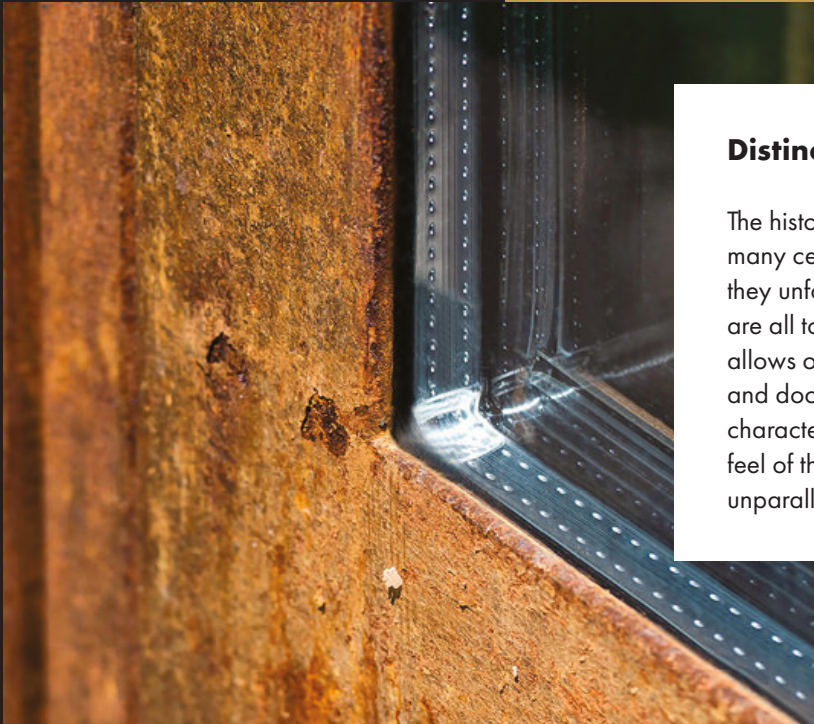




# Metals



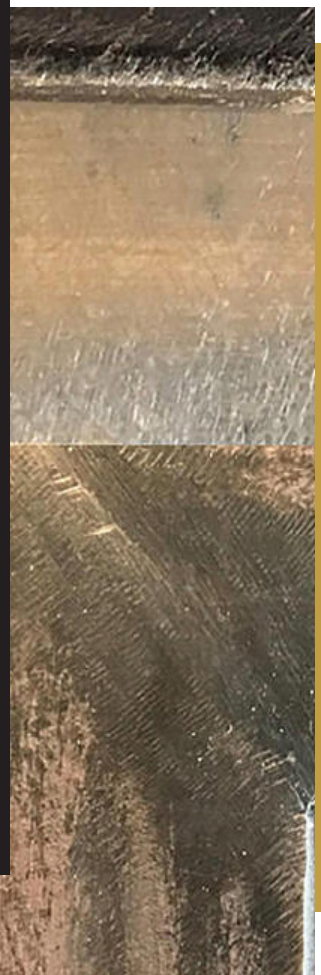
### Distinctive metals

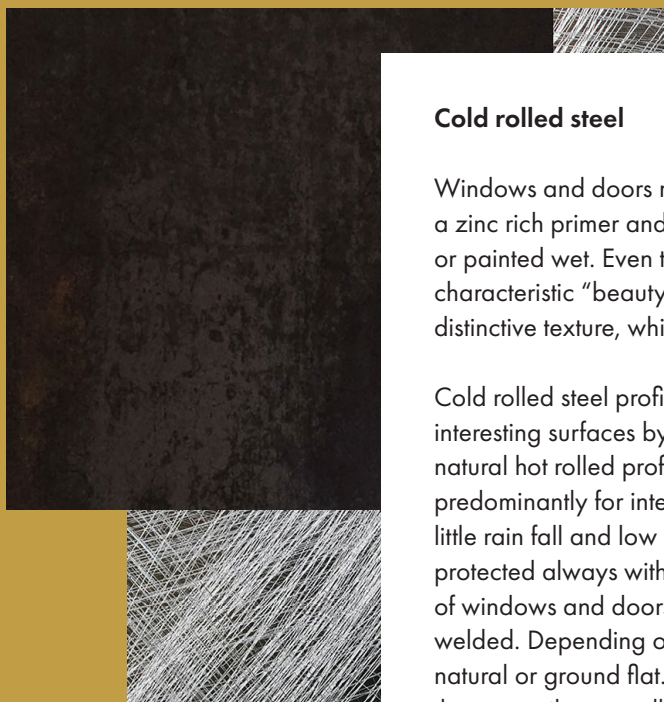
The history of working steel and bronze dates back many centuries, but the enormous design potential they unfold, when correctly chosen and processed, are all to come. The unparalleled strength of steel allows obtaining very large and robust windows and doors with slender frames. These unique characteristics, combined with the beauty and feel of the natural metal surfaces, give life to an unparalleled architectural style and aesthetics.

### Hot rolled steel

Hot rolled steel profiles are by far the most unique and authentic framing material for windows and doors. They have been used for more than a century to define the character and enhance the beauty of commercial, institutional and residential buildings. Next to their elegance and slenderness, they have a one of a kind feature, which is inherent to the manufacturing method.

The hot rolling process confers a special texture to the profiles, which amplifies the rustic and natural character of steel. The amount of rolling marks or slight surface imperfections are the result of an accurate fine-tuning of the tools that shape these steel profiles. Architects often refer to this as "beauty marks", which confer a very distinctive character and visual quality to hot rolled steel profiles. Therefore, it is no big surprise that for many projects, the "as rolled" execution is a popular finish. Nevertheless we recommend to use this natural finish predominantly for internal usage and externally only in dry climatic areas with little rain fall and a low percentage of humidity. The finished frames should be protected with a wax or oil to avoid rust. Alternatively, a clear coat can be used to seal the surface. The corners of windows and doors made from hot rolled steel profiles are always welded. Depending on the desired visual quality, the welds can be either left natural or ground flat. Furthermore, the welds can be emphasized by brushing them to a silver metallic shine or they can be blackened with special patinas.

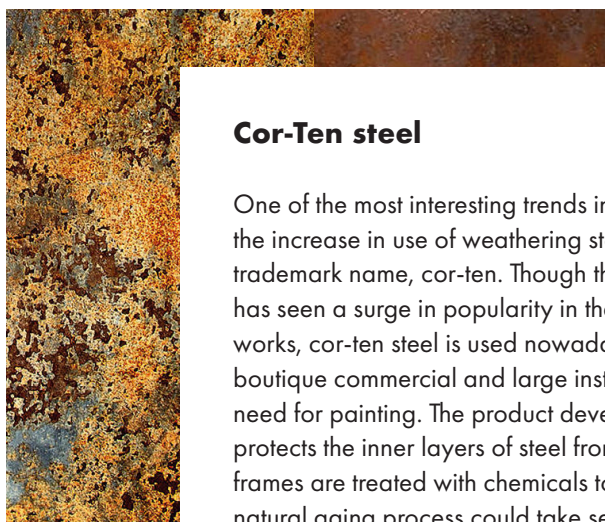




### Cold rolled steel

Windows and doors made from cold rolled steel profiles are usually coated with a zinc rich primer and then coated with one of the many RAL colors by powder or painted wet. Even though cold rolled steel profiles do not have the characteristic “beauty marks” of hot rolled steel, they still have a very distinctive texture, which is often underestimated.

Cold rolled steel profiles have a uniform texture that can be turned into interesting surfaces by brushing, polishing and/or blackening. Same as for natural hot rolled profiles we recommend to use these brushed natural finishes predominantly for internal usage and externally only in dry climatic areas with little rain fall and low percentage of humidity. The finished frames should be protected always with a wax, oil or clear coat to seal the surface. The corners of windows and doors made from cold rolled steel profiles are prevalently welded. Depending on the desired visual quality, the welds can either be left natural or ground flat. Furthermore, the welds can be emphasized by brushing them to a silver metallic shine or they can be blackened with special patinas.



### Cor-Ten steel

One of the most interesting trends in architectural materials of recent years is the increase in use of weathering steel – more commonly referred to by its trademark name, cor-ten. Though the material has been around for decades, it has seen a surge in popularity in the last decade. Originally used in restoration works, cor-ten steel is used nowadays in everything from private residences, boutique commercial and large institutional buildings. Cor-ten eliminates the need for painting. The product develops a thin skin of rust that actually protects the inner layers of steel from the elements. Usually window and door frames are treated with chemicals to accelerate the weathering process as the natural aging process could take several years before achieving this texture. Windows and doors made from cor-ten steel are both suitable for internal and external usage. Being a natural material, it will continuously react to rain or high humidity. This aging phenomenon is also known as “bleeding” and can be contained or avoided by applying periodically wax or oil, or alternatively by sealing the surface with a clear coat. We do not recommend to clear coat corten but to plan and evaluate carefully both aesthetic and functional aspects so that possible natural bleeding will not become a disturbing factor on the building. The corners of windows and doors made from cor-ten steel profiles are prevalently welded. Depending on the desired visual quality, the welds can either be left natural or ground flat.



## Architectural bronze

Bronze is one of the oldest metals known to man since the beginning of the Bronze Age over 5,000 years ago. It is considered a "living material", subject to a natural oxidation or weathering and its colors range from a copper red fading through golden yellow to end in the different shades of classic browns. It emanates a warmth difficult to match with other metals.

Contemporary architecture is rediscovering the value and beauty of this noble metal, which was the principal performer in windows and doors of representative commercial buildings and prestige residences of the 18th and 19th century. The corners of windows and doors made from extruded brass profiles are prevalently brazed or welded and the weld seams are ground flat. In case of profiles with integrated thermal barrier, a mechanical joining is often the preferred choice.

Depending on the color and tone that best suits the project each window and doors goes through a final patina process to achieve the unique aged finish. A protective wax can be hand applied to deter changes of the patina. Nevertheless, on some projects, the natural golden shine of the architectural bronze is the preferred choice and the visible surfaces of the frames are polished or brushed to get a smooth hairline pattern. To prevent oxidation, which would turn it into classic brown shades, a protective clear coat has to be applied.



## Stainless Steel

While stainless steel has been used in architecture, building and construction since the 1920's, its popularity and range of applications has kept growing. Especially on visible applications such as roofs, wall claddings, glazed curtain walls, windows and doors, stainless steel has proven to be long lasting, functional and aesthetic pleasing. Air pollution (industrial or volcanic), salt exposure (coastal or deicing salt), weather patterns (rain and humidity), design and cleaning frequency must be considered when using stainless steel. Our window and door profiles are all made from the more highly alloyed molybdenum containing stainless steel type 316/L (1.4404). For external application, we always recommend this "marine" type stainless steel with a smooth brushed or polished surface finish unless frequent cleaning is acceptable. In the last years, "black stainless steel" has become highly requested due to its natural texture. Similar to bronze this finish is achieved by applying special patinas on the brushed or bead blasted surface. Windows and doors with this black finish have a very distinctive and elegant character. The finished frames should always be protected with a wax or oil. The corners of windows and doors made from cold rolled stainless steel profiles are prevalently welded and welds are ground flat and polished. Alternatively, on some systems corners can be joined mechanically.

## Color coated steel

Windows and doors made from hot rolled steel profiles are usually, hot dipped galvanized, metallized (thermal zinc spray) or coated with a zinc rich primer. In the case of cold rolled steel profiles, especially with a thermal barrier, a zinc rich primer is the most common solution. This gives steel a long-term protection against corrosion and the ideal base to be coated with one of the many RAL colors by powder or wet paints. When it comes to color coating steel for contemporary architecture, architects and designers have shown a preference for darker colors with a grain texture or slightly weathered appearance. Classic black or white paints are often selected for historic buildings to safeguard the original character of the façade.



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