FLAT METALS

Fingerprints – Cleaning?

Grease, oil, and fingerprints can be removed with the help of low-alkali cleaning agents; acetone can also be used. This should be done immediately after contamination. Sharp cleaning agents based on ammonia and chlorides should not be used. Various metal care polishes are suitable for cleaning lightly oxidized surfaces. As an environmentally friendly and easy-to-use alternative, a 5% citric acid solution can also be used.

Flat Metal facades should only be cleaned with cold water and without any additives. Window sills can be regularly cleaned (approximately every 4 weeks) with a damp cloth to remove bird droppings or other deposits.

Facade elements can be freed from dust and leaf residues with a water hose or pressure washer (at low pressure) about every 12 months. Chemical cleaning agents should not be used, as they can damage the copper surface and disrupt the weathering and oxidation behavior of the surface (discoloration, iridescence, darkening). When cleaning windows, care should be taken not to allow chemical substances to come into contact with the reveals, window sills, and lintels, and all areas should be wiped with a cloth afterward. Also, when cleaning windows, care should be taken to ensure that no fingerprints remain on the copper frames, reveals, and window sills. This can also disrupt the uniform surface weathering.

Surface Protection?

Transparent coatings contribute to preserving the natural surface. The coating used can be as simple as a wax coating or as advanced as a high-tech acrylic lacquer. The choice of means depends on the situation. Transparent coatings preserve the surface and prevent the metal from tarnishing due to fingerprints and oxidation. One drawback is that they are not permanent and need maintenance over the years. Typically, interior coatings have a longer lifespan than those used outdoors, where they are exposed to abrasive wear and can be additionally damaged by UV light.

Preventing Staining?

Caution is advised when using copper over or near mortar, cement, marble, stone, and other porous materials. Runoff water from copper surfaces can lead to bluish discoloration on these materials. To avoid discoloration, constructive measures such as larger overhangs, directing runoff water away from other materials through slopes and gutters, and the execution of drip edges are recommended.

Welding, Soldering?

All our Flat Metals Copper materials are weldable and solderable. Naturally, the mechanical strength must match the respective application and be tested. The right welding technique must also be applied (TIG and MIG).

Laser protection film?

Yes, it is available and can be specified when ordering the material.

Does copper still turn green today?

Copper still turns green today, but it will take significantly longer than it did 50 years ago. This is due to cleaner air and less intense environmental influences. A copper roof in Central Europe will only turn truly green after at least 75-90 years. A facade may take even longer; it can be over 100 years, depending on weathering intensity.

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Is copper recyclable?

Yes, copper is 100% recyclable without any loss of quality.

Laser cutting, punching, engraving, bending?

Yes, in general, all Flat Metals Copper products can be processed accordingly. For patinated surfaces like Flat Metals Green and Flat Metals Blue, laser cutting is only possible to a limited extent. Oxidized surfaces like Flat Metals Brown, Brown Light, and Brass Weathered can be laser-cut without any issues. Edges, cutting, punching, and embossing are possible for all Flat Metals Copper products.

Can I use copper together with aluminum and aluminum windows?

Metals are classified according to their nobility. When dissimilar metals come into contact in the presence of oxygen and moisture, the more noble metal corrodes the less noble one. Copper is one of the noblest metals and should be separated from other less noble metals. Painting, gluing, or sealing with non-absorbent materials provide effective protection against galvanic corrosion.

Recent studies suggest that anodized (oxidized) pure aluminum (oxide layer thickness 20 µm) is only slightly affected by copper-containing water in its decorative appearance, but not in its function. However, direct contact without the described surface coating of these two materials should still be avoided.

Today, aluminum components are often coated with colored coatings (strip coatings, powder coatings, anodized coatings, etc.). These components can be combined with copper without any issues. Slight corrosion may occur only under unfavorable conditions at the unprotected cut edges of the aluminum parts. For copper facades in direct contact with aluminum parts, we recommend powder coating the aluminum parts, considering many copper facade projects executed worldwide.

How can graffiti be removed?

Graffiti protection is a sensitive issue, especially for buildings in public spaces. In general, it is possible to seal copper surfaces with an anti-graffiti coating. However, copper loses its natural surface and some of its advantages and character when a coating is applied. As an alternative to traditional anti-graffiti sealants, there are now other cleaning methods (e.g., dry ice blasting) and innovative cleaning products that help remove graffiti without the need for prior coating. Additionally, copper allows for abrasive cleaning of the surface, followed by natural reoxidation over time to restore the natural surface.

Storage of Flat Metals Copper?

Copper strips, sheets, and profiles must be stored in a dry environment with a constant temperature and low humidity. Surfaces must be protected against scratches from dust, sand, etc. Direct contact with alkaline dust, e.g., from screed, concrete, concrete saws, plaster, etc., should be avoided, as it can lead to oxidation changes. Foiled material should also be protected from direct sunlight, as heat and UV radiation can accelerate aging of the protective film and undesired adhesion to the material surface.

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Installation and Protective Film?

The protective film should preferably not be removed from the material during installation. If unavoidable, e.g., at edges, cotton gloves must be worn to protect against fingerprints, sweat, and other contaminants on the copper surface. Before using rubber gloves, they should be checked for wear and material traces on a sample piece of the copper surface. Hands must be kept oil-free during installation. After completing a facade surface (e.g., on the south side), the protective film should be removed promptly from the copper elements. Otherwise, there is a risk of adhesive residues on the surface or moisture infiltrating the film at the edges, leading to uneven oxidation. After installation and depending on weather conditions, the film should be removed within 2 weeks.

What is a copper alloy?

When metals are mixed, new materials with new properties are formed, known as alloys. Copper can be alloyed (mixed) with many different additives. The most important alloy families with their main components are as follows:

Copper - Zinc: Brass
Copper - Tin: Bronze
Copper - Aluminum
Copper - max. 5% addition of other elements: Low-alloyed copper materials
Copper - Nickel
Copper - Nickel - Zinc: Nickel silver
Copper - Tin - Zinc: Red brass

What to consider when working with Flat Metals Copper?

The same metalworking tools commonly used in plumbing and sheet metalwork can be used to work with copper, just as with aluminum and zinc. For patinated surfaces, the tool should be taped before use to avoid chipping and scratches. Patinated surfaces are very sensitive and should be treated with the utmost care. In bent areas, slight chipping of the pre-patination may occur, but it does not indicate a defect or functional deficit.

What is architectural bronze?

The term "architectural bronze" is a common name that is still used. The material referred to is CuZn40Mn2Fe1. This is a special brass, i.e., a copper-zinc alloy with additional alloying elements. Correctly, bronze refers to copper-tin alloys. Therefore, the name "architectural bronze" for a brass material is very unfortunate and creates more confusion than clarity. In the Flat Metals Copper family, architectural bronze visually compares to our burnished brass alloy CuZn15 Flat Metals Brass Weathered.

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What is the difference between band-burnished Flat Metals Brass Weathered and hand-burnished Flat Metals Brass?

Flat Metals Brass Weathered (factory burnished):

Comes with a protective film.
Fully bendable with the film.
Can be delivered as sheets or coils.
Sheets up to 6m in length and 1m in width are possible.
More cost-effective.
The material is manufactured as a whole, not individually burnished sheet by sheet.
If needed, stock material is available in Germany for very fast access within 24 hours.
Flat Metals Decor finishes can be individually determined and applied after burnishing.
The Flat Metals Decor finish can be adjusted at the factory "just in time" in consultation with architects.

Flat Metals Brass – hand-burnished:

Not foiled.
Very expensive, long production time.
More transports, individual production.
No stock material, must be produced sheet by sheet.
Sheet lengths are typically limited to 3.2m.
No production in a single run, but in individual sheets, thus different batches in burnishing are possible.
From our experience, the effort to burnish and install brass individually is significantly higher and not proportional to using factory-burnished brass. Additionally, the surface development for both variants progresses in the same direction, namely, the surface darkening further over time. In this case, the cost-intensive additional effort and longer delivery and production times for individually burnishing brass can be saved. Our suggestion is to choose factory-pre-weathered brass with a Flat Metals Decor finish (e.g., swirl finish 990). This can be determined directly at a meeting at the factory. The material would be delivered foiled, already cut into sheets if desired. At the same time, stock material would be stored so that the material can be accessed quickly during construction. This provides a clear, regulated production and supply flow for installation and a cost-optimized solution that is just as individual!

What is the fire protection of copper?

Copper is found as a solid material in fire protection class A1 – non-combustible. It can be used without restrictions in all conceivable applications and also in high-rise construction.

Difference between verdigris and copper patina?

Unfortunately, the term "verdigris" is often used in the wrong context. Verdigris is a water-soluble salt of acetic acid in combination with copper and is often confused with patina due to its color. However, verdigris can never take on the protective function of the protective layer because of its water solubility and does not occur in construction due to the absence of acetic acid. The well-known green coloration on copper components in the roof and wall areas is exclusively due to oxidation products (non-water-soluble Cu(I) oxide) of copper and should not be confused with verdigris.

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