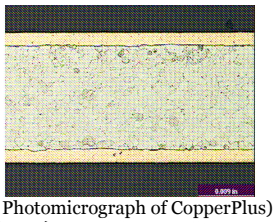
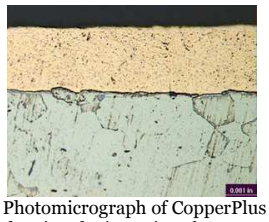
CopperPlus™ The beauty of copper. The strength of stainless.

CopperPlus delivers all of the beauty, durability, and integrity of solid copper at lower cost, while also providing the additional advantages of lower weight, reduced thermal expansion, faster soldering, strength of stainless steel, and complete formability.

CopperPlus is a metallurgically bonded metallic composite strip produced by roll bonding. The roll-bonding process is based on solid-state welding technology, requiring no adhesive or brazing alloys to achieve a clean, permanent, bond. The clad material has excellent bond integrity due to the nature of the metallurgical bond that develops between the copper and stainless steel layers.

Cross sectional depiction of Copper Clad Stainless


Photomicrograph of CopperPlus) (100X)


Photomicrograph of CopperPlus showing the integrity of the bond (500X)


Patricia Corbett Theater, University of Cincinnati, CopperPlus roof installed in 1971

Recommended Applications

Roofing (standing seam, batten seam, flat seam)
Because it is copper, CopperPlus weathers to the same as solid copper. Easy fabrication of standing seam, batten seam, and Bermuda seam roofing styles. Has the strength of stainless steel.

Mansards
Everything you admire in copper plus everything you expect in stainless steel. Can be cut to any desired length because it is available in coil form. Desired effect, ease of handling , and economy can all be balanced for optimum results.

Rain Drainage (gutters, downspouts)
Will accept severe forming. Stainless steel core provides greater resistance to erosion problems in the bends and elbows of gutters and downspouts.

Flashing (base, counter, cap, eave, valley, drip, step)
Cuts, forms, and installs easily. Compatible with all types of mortar and mortar additives. Fully annealed copper clad stainless steel is strong and easy to use. The architect can carry the copper theme throughout the sheet metal work.

Fascia/Wall Panels
Is compatible with all custom and standard designs.

Architectural
The strength of CopperPlus makes it ideal for fabricating dormers, cupolas, finials, spires, scuppers, and conductors.

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Advantages

Endures – Since the bond occurs at the atomic level, CopperPlus is as strong as the metals themselves. It has high resistance to corrosion and erosion and needs no protective coating when set in mortar or concrete.

High strength – Since the core of CopperPlus is stainless steel, the material has a significantly higher strength than solid copper. Equivalent strength to solid copper can be achieved with a much thinner material by using CopperPlus.

Weighs less/costs less – CopperPlus saves construction costs all the way down the line. Less weight means easier handling, less fatigue, more material installed in less time, and the material cost is lower than solid copper.

Solders easier – The lower thermal conductivity of the stainless steel core retains the heat of the joint thus permitting the use of smaller, cooler irons at higher speeds.

Takes any form – Gutters, downspouts, cornices, as well as other intricate shapes are easily formed to bring beauty, quality, and durability to any installation.

Design Specifications

Description – CopperPlus is composed of a 10% thickness of copper metallurgically bonded on each side at the atomic level to an 80% core of Type 430 stainless steel. It is fully annealed. CopperPlus has a 25 year warranty, but is designed to offer more than 60 years of service in the most aggressive environments.

Installation – Install in accordance with recognized construction sheet metal practices. It is readily cut, formed, soldered, welded, riveted, nailed, and otherwise worked by conventional sheet metal methods.

Forming – Fully annealed CopperPlus forms like other soft construction metals. It can be bent flat on itself (180° bend – zero radius) at all standard gauges.

Soldering – CopperPlus is readily soft soldered using 50-50 or higher tin content solder. Mild fluxes for soldering copper are used. Smaller cooler irons can be used, resulting in faster soldering speeds.

Cutting – Conventional hand and power tools are used. For best results, cutting edges should be kept sharp and shears should be closely aligned.

Mechanical Fasteners – All mechanical fasteners (nails, screws, bolts, rivets, etc.) used should be either copper, stainless steel, brass, or bronze.

Sizes – Available in coils, rolls, or cut-to-length sheets up to 24” wide.

Maintenance – Final cleaning is not normally required except to remove solder flux residues, which form a premature green patina in affected areas. When desirable, final cleaning usually can be accomplished with a detergentand water. In the case of heavy deposits, a mild abrasive cleanser is recommended. No routine maintenance is required.

Specifying CopperPlus – CopperPlus is a superior product for any concealed, exposed, or special application where metal is indicated or required by the design. Simply indicate the location and configuration in the usual manner and identify the material as CopperPlus.

Gauges/Weights

Standard thickness [in]	Weight [lb/sqft] CopperPlus	Solid Copper
0.012	0.4959	0.5581
0.016	0.6612	0.7742
0.0216	0.8927	1.007
0.027	1.1159	1.2558

Thicknesses from .030" to .060" available upon request

Design Compatibility – *CopperPlus is compatible with most building materials. However, contact with aluminum or carbon steel should be avoided as these metals may deteriorate when in contact with copper.*

Technical Data (Nominal)

Material Property	Solid Copper (annealed/1/4 hard/1/2hard)	CopperPlus
Mean coefficient of thermal expansion	9.6 x 10-6 in/in/°F (32-212°F)	6.1 x 10-6 in/in/°F (32-212°F)
Mean coefficient of thermal conductivity	226 BTU/hr/sqft/ft/°F	37 BTU/hr/sqft/ft/°F
Density	0.323 lb/in3; 8.91 g/cm3	0.289 lb/in3; 8.00 g/cm3
Ultimate tensile strength	34,100 psi/37,700 psi/42,100 psi	63,000 psi
Yield Strength (0.2% offset)	11,000 psi/29,700 psi/36,300 psi	35,000 psi
Elongation in 2"	45%/25%/14%	30%
Modulus of Elasticity	17 x 106 psi	27 x 106 psi