

# Star Blue™ Copper

Star Blue brings the beauty of aged copper to architectural designs without the centuries-long wait. This preweathered surface achieves a vibrant blue-green tone through a precisely controlled weathering process. Star Blue offers the rich character of naturally aged copper with the practicality of modern expedience, making it an excellent choice for projects of any scale.

## MAIN FEATURES AND CHARACTERISTICS

- A stunning, historic aesthetic in a premium material.
- Slow-to-mature patina; the Star Blue impedes the tendency of the copper ions to combine with oxygen.
- Available in a wide variety of sheet thicknesses and order quantities to fit almost any project and budget.
- 100% metal construction means familiar and common fabrication techniques, a non-combustible surface, and easy recyclability at end-of-life.

## AVAILABLE ALLOYS, THICKNESSES AND SIZES

Star Blue Copper is available as 3' x 10' sheets in a variety of standard thicknesses, ranging from 20 oz [0.027"] to 48 oz [0.065"].

Inquire with your Zahner sales representative for information regarding the availability of alternative sheet sizes.

## DIMENSIONS AND TOLERANCES

Dimensional tolerances for Star Blue Copper are provided in the table below.

### DIMENSIONAL TOLERANCES

Property	Unit	Value
Width	in	+ 1/8, -0
Length	in	+3/8, -0
Flatness <sup>1</sup>	in	0.4

<sup>1</sup> Maximum deviation from a horizontal, flat surface.

## PATTERN AND COLOR

Star Blue Copper is a single-sided product with a non-directional pattern. Made to order by Zahner artisans, using an accelerated patination process that results in an blue-green oxide layer, Star Blue Copper is subject to natural variations in hue and pattern.

No two sheets of Star Blue Copper are identical. If anticipating the need for additional sheets in the future, it is recommended to order these at the time of initial order to minimize batch-to-batch variation.

## MATERIAL AND PHYSICAL PROPERTIES

Star Blue Copper contains a minimum copper content, including silver, of 99.5%. It is supplied in an H00 temper. Select material and physical properties are presented in the table below.

### SELECT MATERIAL AND PHYSICAL PROPERTIES

Property	Unit	Value
Density	lbs/ft <sup>3</sup>	558
Coefficient of Thermal Expansion	in/in/°F	9.8 × 10 <sup>-6</sup>

**FLAMMABILITY**

Star Blue Copper has been tested in accordance with ASTM E-84 and meets the criteria for Class A as described by the International Building Code (IBC).

ASTM E-84 RESULTS	
Flame Spread Index (FSI)	0
Smoke Development Index (SDI)	5

**OUTDOOR USE AND LIMITATIONS**

Star Blue Copper can be used in most exterior applications. Certain horizontal applications, such as exterior counters or seating, are discouraged due to the potential for water to pool and create spotting or other staining effects.

**FABRICATION GUIDELINES**

Please follow the guidelines for fabricating sheets of Star Blue Copper.

**General notes for all fabrication**

- Follow best-practices in regards to proper occupational health and safety measures, such as the wearing of eye protection, and the use of respirator devices when grinding or polishing.
- Prior to fabrication for your project, it is strongly recommended that any fabrication steps be tested on sample material or fall-off.

**Cutting and Drilling**

Use high-speed steel, heavy duty machine drill bits at the proper speed when drilling holes.

Star Blue Copper may be cut using a shear for simple linear cuts. The use of cardboard or other surface protection measures are recommended to protect the surface from oils and other debris.

For the cutting of simple curves and forms, the use of manual cutting methods appropriate for copper sheet, eg, a bandsaw, jigsaw with proper blade, or snips, will suffice.

For the cutting of complex and/or detailed shapes, CNC methods, such a laser cutting machine capable of cutting copper, or waterjet, is recommended. For appropriate cutting parameters (speed, power, etc.), please reference the manufacturer’s recommended settings for copper.

**Bending**

Star Blue Copper can be bent to a variety of forms using commonly practiced sheet-metal bending techniques. To maintain the appearance of the Star Blue surface, the following best-practices are recommended:

- DO use a brake-press with a properly sized punch and die.
- DO use a urethane ‘no mar’ die liner or an equivalent aid to protect the surface.
- DO NOT bend to an outside radius less than 2.5x the thickness of the sheet.

**Welding and Soldering**

Star Blue Copper is compatible with copper soldering methods.

Note that the Star Blue Copper surface in the vicinity of the soldering will need to be removed prior to soldering. Therefore, it is recommended that designs that require soldering take this into account and locate the soldered connection where they will be hidden from view.

**Gluing**

Star Blue Copper is compatible with a variety of common adhesives designed for metals. Follow the manufacturer’s recommended procedures for copper/metal when bonding Star Blue Copper to other materials.

## STORAGE AND HANDLING

Star Blue Copper should be stored in its original packaging in a dry, indoor location away from direct sunlight. Store the product on flat, level ground. Keep in a low-traffic location to help protect all edges from incidental damage. Any protective masking, if applied, should be removed within 6 months of the date of shipment.

- Do not store outside, in direct sunlight, or in wet environments.
- Do not stack objects on top of the products or packaging.

### Handling

When handling Star Blue Copper, the wearing of cotton, nitrile or latex gloves is recommended to prevent dirt and oils from contaminating the finish. When carrying or manually transporting, take all necessary precautions to prevent denting, scratching or other damage to the finish. If temporarily setting sheets of Star Blue Copper on an edge, the use of wood blocking and/or shop towels is recommended between the sheet's edge and the ground in order to prevent denting or deforming of the edge.

## CLEANING

Clean Star Blue Copper at least once per year to ensure the initial appearance is retained. Use warm soapy water and a clean, soft cotton cloth, followed by a thorough rinse using clean water. Wipe dry with a clean, soft cotton cloth.

If a more aggressive cleaning solution is required, Isopropyl Alcohol, Windex® Original Glass Cleaner, or Windex Vinegar Glass Cleaner can also be used. Clean and wipe dry with a clean, soft cotton cloth.

**Do not** use cleaners that contain abrasives, as these will damage the Star Blue finish.

Whenever cleaning Star Blue Copper for the first time, test in an inconspicuous area. If no damage to the finish occurs, proceed with cleaning. Clean the entire surface equally - clean all the way to any edge or joint - to avoid visible differences in appearance.

## END OF LIFE AND DISPOSAL

Star Blue Copper is 100% monolithic copper and can be recycled at end of life using existing scrap and recycling streams for metals.