Why Solid Sand-Cast Bronze?

Understanding why CAST Landscape™ is committed to Solid Bronze.

When David Beausoleil founded CAST Lighting, his mission was to provide the highest quality materials, workmanship and performance in the manufacture of landscape lighting fixtures. This mission came out of his personal frustration after years of working with products made of aluminum, copper, other metals and plastic composites. These materials simply failed to withstand the abusive outdoor environment and broke, bent, chipped, corroded, cracked and failed to perform their function.
Settling on bronze for its durability, resistance to corrosion and natural beauty, David launched large-scale production in a custom-built foundry to produce what have come to be known as the highest quality outdoor lighting fixtures on the market today. Casting bronze is a labor-intensive operation requiring skilled workers who have mastered the art of sand-casting. Because the process is so time-consuming and difficult, no other manufacturer has even attempted to duplicate CAST's fixtures. The following points explain why CAST is so committed to the use of solid bronze and why this rugged metal is valued so highly by the consumer.

What is Bronze?

Bronze is an alloy that primarily contains copper, tin and nickel. It's introduction over 5,000 years ago revolutionized metal work and launched the Bronze Age. By adding tin to copper, workers created a metal that was stronger and impervious to corrosion. Bronze artifacts have been found dating from as early as 3,500 BC.

How is Bronze different from Brass?

Brass is also an alloy of copper, but differs from bronze in that its primary additive is zinc. Brass is similar to bronze in hardness but suffers from the process of 'dezincification'. This process that begins upon exposure to heat and humidity is the leaching of zinc from the metal. As the zinc migrates from the copper it leaves a porous structure susceptible to cracking and corrosion. As a result, brass lighting fixtures may eventually exhibit persistent red spots (zinc oxide) and become more brittle and crack as they age. Brass is commonly used for landscape lighting fixtures because the melting temperature is lower than bronze making it easier to cast in an automated production. The high melting point of bronze necessitates casting in sand (a more difficult process) since the metal molds used in brass production would melt. A new sand mold is created for every individual CAST fixture.

Understanding Corrosion

Corrosion of landscape lighting fixtures occurs through several mechanisms that are electrochemical in nature. In other words, chemicals react with the metals to produce an electric current. This current changes the structure and composition of the metal and results in pitting, flaking, chipping and cracking.

The following chart illustrates how various metals found in lighting fixtures compare in their resistance to corrosion:

Least Subject to Corrosion

Stainless Steel
Bronze
Copper
Brass
Cast Iron
Wrought Iron
Mild Steel
Aluminum

Most Subject to Corrosion

It should also be noted that while stainless steel is (in ideal conditions) more resistant to corrosion than bronze, it may be more susceptible at its edges, creases and at points where it contacts other metals. In an attempt to prevent corrosion, manufacturers use various coatings (e.g. powder-coat, paint and sealers) on the more susceptible metals. These coatings invariably fail to prevent corrosion since even microscopic gaps or inconsistencies in the coatings (or physical damage to the coatings) expose metal. This provides points of corrosion that can rapidly grow. The result is that the coatings are undermined, separating them from the surface leading to cracking and chipping.

Is Bronze more Beautiful?

Moving from the scientific to the aesthetic, we can assess the superiority of bronze as a feature in the landscape. Bronze has a long history of use as the preferred material for outdoor sculpture, partly because of its durability but mainly because it weathers so beautifully.
Once installed outdoors, the metallic bronze darkens to an old-penny brown then eventually to a greenish/blue patina. These colors compliment the browns and greens in nature and do not distract from the natural beauty of the landscape.

Why Homeowners prefer Solid Bronze

CAST Landscape Lighting Designers will typically ask a homeowner to hold, first a CAST solid bronze fixture and then a fixture from another manufacturer. The first impression is surprise at how the CAST fixture is so much heavier than the other. This immediately translates into the (correct) impression of greater durability and value. In a market flooded with low quality fixtures out of Asia, designers who select solid bronze set themselves apart from their competitors.