The Lost Wax Bronze Process

The process begins when the sculptor creates an original sculpture. This original model is usually created from clay or wax, although other materials (wood, metal, etc.) may be used as well.

Rubber Mould:
A flexible silicon rubber mould is made from the original sculpture. This mould captures every detail put into the sculptor’s original work and is one of the most critical phases in the process. This master mould is used to create duplicates (an edition).

Wax Casting:
Melted wax is then poured into the cured rubber mould, producing a faithful positive wax casting of the original sculpture.

Wax Chasing:
The positive wax casting is removed from the master mould and hand-finished to perfectly match the original sculpture.

Spruing:
Wax rods, called gates, are attached to the wax positive to allow the even flow of molten metal (bronze) and to alleviate the trapping of air and gas. A sprue cup (funnel) is placed onto the wax to receive the molten bronze.

Investing:
The wax casting is then coated with an investment, (a liquid refractory ceramic). Several layers are applied to create a stable mould. This mould is allowed to cure for several days.
The Lost Wax Bronze Process

**Burn-Out:**
The sculpture, now coated in a stable ceramic shell, is fired in a kiln. This bakes the shell and eliminates the wax, leaving a cavity in its place.
(Thus the term, *LOST WAX*)

**NOTES:**

**Bronze Casting:**
The ceramic shell is removed from the kiln and molten bronze is immediately poured into the shell. The molten bronze is poured at a temperature of 2,100°.
(Bronze is an alloy of 95% copper, .02% lead, .02% tin, .06% zinc, 4% silicon)

**Breakout:**
After cooling for several hours, the ceramic shell is carefully broken away, revealing the raw bronze sculpture inside.

**Sand Blasting:**
Fine sand particles are air-pressure blasted over the sculpture’s surface to remove the last traces of ceramic shell that still adhere to the raw bronze casting.

**Finishing:**
The raw bronze casting is now cut free from the *gates* and *sprues* attached to it. *Metal chasing* (grinding, sanding, polishing) thoroughly prepares the bronze surface for patination.

**Patination:**
The chased bronze is now treated with chemicals and heat to give it the chosen color specification (*Museum Black* & *Rich Luster Brown* are traditional patinaes, but a wide range of color finishes is possible). The patinae finish is sealed with a wax coating and becomes a permanent part of the completed sculpture.