

# healthy metal

Copper is easy on the eyes, but its antimicrobial benefits make it good for the body, too

By Sofia Galadza



Rocky Mountain Hardware, Metro Collection. Circle No. 213

For architects and designers, the two best-known features of copper relate to aesthetics: there is the unmistakable reddish hue and the green “verdigris” it acquires over time. But there is another property that professionals may be surprised to hear. Copper is inherently antimicrobial. For example, Egyptians, Greeks, Romans, and Aztecs used copper to treat wounds, and copper workers in Paris were found to be immune to an 1850 cholera epidemic. But recently, studies sponsored by the Copper Development Association and the International Copper Association have shown that uncoated copper and copper alloys can inactivate common disease-causing bacteria, such as *E. coli*, streptococcus, and staphylococcus (better known as MRSA).

In short, the study, which was conducted at the University of Southampton in the United Kingdom, found such germs were eliminated on pure copper surfaces in 1.5 hours. By comparison, the pathogens survived for 4.5 hours on brass, and on stainless steel they could survive unabated for more than 30 days. The study also shows that the higher the copper content in a given alloy (in a bronze alloy, for example), the more effective it is.

What is it about copper that makes it effective in fighting germs? Dr. Andrew Dent, vice-president of library and materials research at Material Connexion in New York, explains there are several metals that have antimicrobial properties. Silver is the best known and most effective, and copper is the next of those that may be used by humans. “The anti-bacterial effect of these metals is achieved by small numbers of metal ions being absorbed into the bacteria and disrupting the respiration and electron transport systems of the bacterial cells. Basically, the metal ions toxically asphyxiate the bacteria. Because there are billions of metal ions on the copper, this process will continue to work so long as there is fresh copper surface.”

Of course, copper also looks good and performs well, which is why companies have long used it for such products as door hardware and faucets. Rocky Mountain Hardware, for example, works exclusively with bronze alloys—one of which is 90 percent copper. “Because of this high content, much of the beauty of bronze in its coloring and patina comes from the copper,” says Christine Kirby, marketing director for the Hailey, Idaho-based company. She is glad to learn of the antimicrobial benefits, but clarifies what may be a point of confusion. “Being part of an alloy only decreases these benefits in relative proportion to the percentage of copper in the alloy. Therefore, if 90 percent of bronze is copper, bronze has 90 percent of the strength as pure copper.” But as anyone that’s had a bout of food poisoning can attest, that’s better than no protection at all. ■